W. J. Morse Personal Copy

DORSETT-MORSE EXPEDITION

1928-1931

Vol. 6

Office of Foreign

Plant Introduction.

DORSETT-MORSE EXPEDITION 1928-1931

VOLUME VI.

Diary for April-June 1930

Note. The pages are not numbered consecutively because the original diary contained correspondence and other data that belonged in the letter files and not in the bound report.....B.Y.M.

Tuesday, April 1, 1930

Dairen, Manchuria.

Arrived in Dairen about 8:00 a. m. and after conformi to the customary customs regulations, which in this instance were nothing more than showing our pass ports and police certificates, the latter apparently being the most important papers, we went ashore and to the Yamato Hotel.

After registering and getting located we called at the American Consulate and met the Consul, Mr. W. R. Langdon, registered and got the mail they had for us. The collection consisted of several personal letters and several official communications.

After lunch we went to the headquarters of the South Manchurian Railway Company to meet some parties to whom we had cards. We found the headquarters closed and learned that it was a holiday, and that the office will be open tomorrow.

From the Railway office we went to the National City Bank of New York. Here we met Mr. . French, the manager, and Mr. M. L. Young. We presented a letter of introduction from the manager of the Bank in Tokyo and completed the necessary papers and opened a deposit and checking account.

Tomorrow we will try and locate a laboratory and storage room for our supplies and equipment.

Tuesday, April 5, 1938

Dairen, Manchuria.

Arrived in Dairen about 9:00 a. m. and after passed by the customs officers regulations, which is very tiresome when coming into this country and with customs and police officers, the latter apparently being the most impertinent people we met during and in the Manchu Road.

After registering and getting landed we called on the American Consul General and the Consul, Mr. R. R. Langdon, registered our arrival and that day for us. The Consulate consisted of another person and a Chinese and several official communications.

Then lunch in some of the Russian restaurants on the north Manchurian Railway Company's street then returned to wait on our ship. We found the customs officers closed and learned that it was a holiday, and that our office will be open tomorrow.

From the Railway office we went to the National City Bank of New York. Here we met Mr. . Frank, the manager, and Mr. H. L. Young. We presented a letter of introduction from the manager of the Bank in Tientsin and explained the necessary papers and opened a deposit and checking account.

Returned to ship and I wrote a long story and answered some letters and telegrams and explained.

Wednesday, April 2, 1930.

Dairen, Manchuria.

This morning we called at the office of the South Manchurian Railway Company and met Mr. Kan Matsushima, one of the high officials in charge of the agricultural activities of the company.

Mr. Matsushima was in the United States a few years ago and visited the Department. During this visit he met Mr. Morse and a number of other officials.

We went over our plans for this season's work with Mr. Matsushima, and got from him a number of interesting and valuable suggestions. He also presented us with a number of pamphlets of the South Manchurian Railway relative to soybeans and other Manchurian crops. He outlined for us the important soybean, fruit and vegetable sections which he thought we should visit.

With the exception of 30 meters on each side of the S. M. Ry. in the Japanese leased territory, practically all farmers are Chinese.

We had lunch with Mr. Matsushima and then went with him to the Museum building, where we saw a relief map of Manchuria and got a very good impression of the important agricultural producing regions.

We also saw a rather extensive and interesting exhibit of soybeans, soybean cake and other soybean products. They had a very good collection of millets, sorghums, rice, barley, mung beans, adsuki beans; also a very good exhibit in way of pears, apples, grapes and vegetables. We saw a red to light red pear of good size which we were told is

native to Manchuria. We have not previously seen one like it and will try to secure scions. We will also try to get scions at the proper season of three varieties of Diospyros kaki, which, we understand, grows to the south of Dairen. Three of the grapes said to have been grown in China for 10,000 years, also look promising and this fall or winter we will try to secure cuttings of them. We will also endeavor to get tubers of the native sweet potato and seed of the native Manchurian cotton.

We understand there are three commercial varieties of native apricots, these we will try to get seed of.

We also saw at the Museum quite a large collection of Manchurian drug plants.

Mr. Matsushima told us that there was a much larger collection in Mukden. We will try and look this collection up when we get to Mukden, and may possibly arrange to get seed or plants or both of some of the more important.

From the Museum we went to look at rooms for on office and laboratory. Only found one whichat all appealed to us, and it is fully twice as large as we need. They promised to let us know tomorrow if they will run a partition through the center and if so what they will want for it by the month.

Later in the evening we visited two of the vegetable, fruit and fish markets. The markets here are quite different from any we have seen before and were very interesting.

The following is a list of the vegetables and fruits which we noted on display while passing around through the market.

April 2, 1930 (cont.)

Vegetables.

Daikon, Japanese & Chinese.
Carrots.
Spinach.
Crown daisy.
Onions, fresh, in var.
Ginger, tubers & shoots.
Japanese celery.
Lotus roots.
Yams, long, and round.
Udo shoots.
Eleocharis.
Chinese cabbage, several varieties.
Irish potatoes.
Sweet potatoes.
Bean sprouts.
Parsley.
Radishes.
Cucumbers.
Dasheens.
Bata bar.
Edible-pod peas.
Green peas.
Bulb onions.
Garlic, fresh and dry.
Winter gourds.
Burdock.
Tomatoes, poor.
Lettuce, poor.
Cauliflower, poor.
Egg plant.
Sagetaria.

Fruits.

Oranges, in variety.
Apples, in variety.
Pears, Chinese & Japanese.
Dried persimmons.
Kumquats.
Watermellons.
Bananas.
Dried Chinese jujubes.

Thursday, April 3, 1930.

Dairen, Manchuria.

Today was a Japanese holiday, but even so, Dorsett went to look for office and laboratory space, while Morse went to the docks to see their condition regarding soybeans and soybean cake, and the possibility of our getting pictures.

Dorsett first called on the manager of the building in which the National City Bank of New York is located, where he saw three large vacant rooms yesterday, to learn whether or not he would run a partition through one of the rooms and rent us half of it, and if so under what conditions and at what price per month.

The man told us that they had never divided a room and could not do so now. In some respects it is a desirable place, or perhaps we should say the most desirable we have found thus far, so we asked if he would rent half of the room if we would build a temporary partition, and at what price. We received practically the same reply, all or none. So we said good morning and went on the search for some other room.

Here is a case (in our estimation) where a man has more vacant space than he has brains, and as a result is not in a position to effect a change in such a condition when an opportunity presents itself. He has three vacant rooms each about 24 x 36 feet and for each he wants Yen 108.00. We would have been willing to give him 60.00 or 75.00 Yen per month for 10 or 12 months for a half of one of these rooms, but it was all or nothing. So we went on hunting but found nothing. When we returned for lunch we learned that

the gentleman, Mr. K. F. Mulder, whom the Consul, Mr. Langdon, had referred us to, had called.

Dorsett went to look at what Mr. Mulder had to offer in the way of rooms, but did not find anything satisfactory.

Friday, April 4, 1930.

Dairen, Manchuria.

When Mr. Suyetake arrived at the hotel this morning, he reported that he had located three rooms, each about 18 x 27 feet in the Gohin Building, which he thought would answer our purpose.

After lunch we went down (the building is only about eight minutes walk from the hotel) and looked them over.

They are in a three-story concrete building and are on the 3rd floor. The one with six windows, which gets afternoon sun, looked best to us, so spoke for it at a monthly rental of Yen 50.00 including the room with heat, water and a limited amount of light.

We get possession tomorrow. We will go up and get the Consul to witness our signatures to our rental agreement and will then get lumber for our dark room and shelving, so as to get the room in shape by the time our trunks with the supplies and equipment get here. We look for them on the 8th or 10th.

It surely is a relief to know that we are to have quarters fully as good as we had at Tokyo, and that we get them for less money.

The weather, thus far, has been fine; a little warmer than when we arrived. We are trying to arrange for permits to take still and motion pictures and will likely have them by next week.

Saturday, April 5, 1930.

Dairen, Manchuria.

Completed arrangements for the rent of room #12 on the third floor of the Gohin Building and for April (from 4th to the 30 th inc.) 27 days, paid Yen 45.00, and made an additional deposit of Yen 55.00 as security. The Yen 50.00 per month, rent, includes the room of 15 tsubo (1 tsubo is equal to about 7½') heat, water and a normal amount of electric light.

We then secured the necessary lumber for building a dark room, also nails and roofing paper and an additional amount of lumber for shelving.

We got the darkroom about half completed. Also purchased four tables and six chairs and one stool from a second hand furniture dealer for use in the laboratory.

While Dorsett and Suyetake were attending to the details of room rent adjustment and the purchase of lumber and furniture, Morse was conferring with Mr. Matsushima regarding the soybean situation in Manchuria and also arranging for our summer and fall campaign of work.

Saturday, April 5, 1930.

Dairen, Manchuria.

Completed arrangements for the rent of room #12 on the third floor of the Cobin Building and for April (from 4th to the 30 in the.) 27 days, paid Yen 45.00, and made an additional deposit of Yen 35.00 as security. The Yen 30.00 per month, rent, includes the room or 15 tsubo ( ) tsubo is equal to about 7½') heat, water and a normal amount of electric light.

We then secured the necessary labor for building a dark room, sink racks and roofing paper and an additional amount of labor for cleaning.

We got the darkroom about half completed. Also purchased four tables and six chairs and one steel safe a second hand furniture dealer for use in the laboratory.

While Doremit and Sugatani were attending to the details of room rent adjustment and the purchase of labor and furniture, Moore was corresponding with Mr. Matsumiya regarding the Japanese situation in Manchuria and also arranging for our summer and fall campaign of work.

Sunday, April 6, 1930.
Dairen, Manchuria.

Put in the day at the laboratory and office and got along very nicely.

We practically completed the dark room, except the wiring for light; we also completed the shelving and are now ready for our trunks and boxes of supplies and equipment.

We have a photographing frame and motion picture drying rack to build, also means for drying herbarium specimens.

Monday, April 7, 1930.

Dairen, Manchuria.

Today, Morse and Suyetake went to see Mr. Matsushima and visit some of the South Manchurian Railway Laboratories. Dorsett continued the work on the dark room and also made a table and herbarium dryer similar to the one which we used successfully in Tokyo the past season.

Things at the new laboratory and headquarters are about ready for our supplies and equipment, which are due to arrive tomorrow or the day following.

Tuesday, April 8, 1930.

/Dairen, Manchuria.

Morse and Suyetake were out until noon getting information about soybeans and soybean products, and also getting a line on where we can get good still and motion pictures of the storage and transportation of soybeans and soybean cake.

Dorsett put in the time wiring up the dark room and herbarium dryer and in making a photographic stand for natural and nearby pictures.

Dry and fine weather.

Wednesday, April 9, 1930.

Dairen, Manchuria.

Completed, today, the wiring of the dark room and herbarium dryer. Yesterday we had considerable trouble with the wiring and burned out quite a number of fuses because we did not wire out switches correctly. This we corrected today and everything worked o. k.

Morse went out to one of the oil mills here in Dairen and secured a lot of data, also made arrangements for our getting pictures later.

About four o'clock this afternoon we went down to the dock to see about our baggage which we sent by freight from Tokyo. We were promised that it would be shipped on a steamer leaving there March 31st. We looked up that steamer and found that although she did not sail until April 1st, a day later, our 17 trunks and 5 or 6 boxes apparently did not get aboard.

Mr. Suyetake wired the shipping agency about five this evening to let us know why they did not get it out as promised, and also to advise when it was shipped and on what steamer it was loaded.

Wednesday, April 9, 1930.

Dairen, Manchuria.

Completed, today, the wiring of the dark room and darkrium dryer. Yesterday we had considerable trouble with the wiring and burned out quite a number of fuses because we did not wire out switches correctly. This we corrected today and everything worked o. k.

Morse went out to one of the oil mills here in Dairen and secured a lot of data, also made arrangements for our getting pictures later.

About four o'clock this afternoon we went down to the dock to see about our baggage which we sent by freight from Tokyo. We were promised that it would be shipped on a steamer leaving there March 31st. We looked up that steamer and found that although she did not sail until April 1st, a day later, our 17 trunks and 5 or 6 boxes apparently did not get aboard.

Mr. Suyetake wired the shipping agency about five this evening to let us know why they did not get it out as promised, and also to advise when it was shipped and on what steamer it was loaded.

Thursday, April 10, 1930.

Dairen, Manchuria.

This morning we called at the office of Mr. K. Matsushima and a little later, in company with Mr. Yoshitane Sato of the Bureau of Agriculture of the South Manchurian Ry. we visited the soybean exchange.

Here, as in all other grain exchanges, of which we have has an opportunity to see anything, pandemonium raged on the floor of the chamber.

The room looked to be 40 feet or more in width and 75 feet or so in length, with a gallery extending around the entire room. The arrangment and practice is somewhat different from other exchanges we have seen, primarily due to the fact of the difference of nationality of its members, of which we understand there are about 100.

We were told by a gentleman employed in the exchange, who was showing us the sights, that of the total number of members, 60 are Chinese, 30 Japanese and 10 of other nationalities, Russian, Danes, British, etc.

On one side of the room is a row of black-boards upon which the brokers write in Japanese or Chinese characters the amount of stock they have, the date of delivery and the price.

On the opposite side of the room is a long table on a raised platform, here clerks (some, we saw with opera glasses viewing the blackboards, the glasses are used to enable the clerks to more accurately determine the characters) tabulate the blackboard records, of which, during a days session there are many records of offer and prices.

The records, when completed, are approved by the authorities of the exchange before being given to the press for publication.

From the exchange we went to one of the research laboratories of the Agricultural Branch of the S. M. R., where we met Mr. K. Takamori, also the assistant Director of the Bureau of Economic research, Mr. Y. Igarashi. These gentlemen offered to assist us in any way possible; both speak some English and understand a good deal. We next visited Mr. Y. Nakanishi, Secretary of the Soybean Oil Association. Mr. Nakanishi speaks some English. He kindly offered to assist us in any way possible, especially in trying to arrange with commercial oil mills for us to make interior views of interesting features and operations.

After lunch we visited quite a good sized shoyu sauce factory and looked over the plant, including culture chambers and ageing mach vat rooms.

They demonstrated for us their method of vat mash stirring by compressed air. It is a simple method. The air passes through a one-inch iron pipe to the bottom of the tank, as the pipe is moved about over the bottom the air expelled from the pipe, forces its way up through the mash, which gives the impression of its boiling. The practice appears to us to be much more effective and much easier than the hand or paddle method of stirring the mash which is pretty generally followed.

The refuse left after pressing out the soy sauce, is sold for cattle feed (we understand primarily for hog feeding). It is also resoaked and used for making a much inferior and

cheaper grade of shoyu sauce, for which this concern has quite a demand.

We received several official letters from the office today, the contents of which especially regarding our work for this year, are more or less disconserting. They are at variance with our understanding of much of the work outlined and arranged for at Washington before our departure, and by no means in accord with the policy concerning the work in Japan outlined quite differently to us in correspondence received shortly after we took up our work in Japan in the spring of 1929.

The letters to which we refer are under date of March 10 and 13, these, together with our reply, where a reply is deemed advisable, will be found under a later date in this field trip report.

Friday, April 11, 1930.

Morse worked most of the day in his room at the hotel. He had a rather bad cold and did not remain long at the office, which on account of there being no heat in our room # 12, Gohin Building, was rather chilly and uncomfortable.

Dorsett put in the entire day at the office. Our official baggage arrived about 11 o'clock and by about 6 or a little later it was unpacked and stored on the temporary shelves previously fitted up.

Just before leaving the office, shortly after six o'clock, Dorsett felt cold shivers run up his spinal column but experienced no pain. Not liking the chilly sensation experienced just before leaving the office, Dorsett took a couple of aspirin tablets and retired early.

Friday, April 11, 1930.

Morse worked most of the day in his room at the hotel. He had a rather bad cold and did not remain long at the office, which on account of there being no heat in our room # 12, Colin Building, was rather chilly and uncomfortable.

Dorsett put in the entire day at the office. Our official baggage arrived about 11 o'clock and by about 6 or a little later it was unpacked and stored on the temporary shelves previously fitted up.

Just before leaving the office, shortly after six o'clock, Dorsett felt cold shivers run up his spinal column but experienced no pain. Not liking the chilly sensation experienced just before leaving the office, Dorsett took a couple of aspirin tablets and retired early.

Saturday, April 12, 1930.

Dairen, Manchuria.

Mr. Morse took up the leadership of the work and carried it forward during Dorsett's illness, which lasted until June 11th, extremely creditable to himself and the expedition. His daily notes follow.

Most of the day was spent at the office of Mr. Satoh, assistant agricultural engineer of the Bureau of Agriculture of the S. M. Ry. Mr. Satoh discussed plans with us for the soybean and their agricultural investigations in South Manchuria. We were offered every facility by the S. M. Ry. Bureau of Agriculture and their several experiment stations to aid us in our work.

In addition to extensive work with soybeans, much work is being done with cotton in the Kwangtung Leased Territory. The breeding and variety work is chiefly with the upland varieties. Cotton of the native varieties is grown as far north as Mukden. In 1929 about 70,000 pounds of cotton were produced in the Kwangtung territory. The native varieties of cotton yield about 400 pounds per acre while the improved varieties, developed by crossing native varieties with introduced varieties, yield about 800 pounds per acre. The S. M. Ry. experiment stations are trying to develop earlier varieties of upland cotton because of the short season in South Manchuria.

Saturday, April 12, 1930.

Salisbury, Nyasaland.

Mr. Hopes took up the leadership of the work and carried it forward during Dorsett's illness, which lasted until June 11th, extremely creditable to himself and the expedition. His daily notes follow.

Most of the day was spent at the office of Mr. Eaton, assistant agricultural engineer of the Bureau of Agriculture of the S. R. Mr. Eaton discussed plans with us for the soybean and their agricultural investigations in South Nyasaland. We were offered every facility by the S. R. Bureau of Agriculture and their several experiment stations to aid us in our work.

In addition to extensive work with soybeans, much work is being done with cotton in the Zambezi Lowland Territory. The breeding and variety work is chiefly with the upland varieties. Cotton of the native varieties is grown as far north as Mulanje. In 1929 about 70,000 pounds of cotton were produced in the Zambezi territory. The native varieties of cotton yield about 400 pounds per acre while the improved varieties, developed by crossing native varieties with introduced varieties, yield about 800 pounds per acre. The S. R. Ry. experiment stations are trying to develop earlier varieties of upland cotton because of the short season in South Nyasaland.

Sunday, April 13, 1930.

Dairen, Manchuria.

Worked on plans for soybean investigations in South Manchuria and Central Manchuria during the coming season. The Kungchuling station of the S. M. Ry. is doing the principal breeding work with this crop, and two seed farms, one at Kaiyuan and the other at Daiton, are used as soybean increase seed farms.

A short trip was made to Hoshigaura to observe early wild legumes in that vicinity. Plants of Astragalus scaberrimus were observed in bloom. A few plants of a wild Melilotus sp. was noticed which had made a fairly good early growth. This species may be M.. suavaolens which occurs in Manchuria. A Medicago sp. was aldo noticed and appeared to be of the Sand Lucerne type. It may be well to visit this section about July as seed of these species should be mature about then.

Sunday, April 13, 1930.

Dairen, Manchuria.

Worked on plans for soybean investigations in South Manchuria and Central Manchuria during the coming season. The Kungchuling station of the S. M. Ry. is doing the principal breeding work with this crop, and two good farms, one at Kaiyuan and the other at Dairen, are used as soybean increase seed farms.

A short trip was made to Hoshigaura to observe early with legumes in that vicinity. Plants of Astragalus sinicus were observed in bloom. A few plants of a wild Medicago sp. was noticed which had made a fairly good early growth. This species may be M. muricoleus which occurs in Manchuria. A Medicago sp was also noticed and appeared to be of the Sand Lucerne type. It may be well to visit this section about July as seed of these species should be mature about then.

Monday, April 14, 1930.

Dairen, Manchuria.

Went to the American Consulate in the morning, and discussed with Mr. Langdon, the Consul, the soybean industry in South Manchuria. He has collected statistics on the exports of beans, bean cake and bean oil and gave us a summary of such data fr 1929, which is as follows:

Exports - Manchuria - 1929.

	Tons (short).
Soybeans.	
Japan	604,753
Europe	1,403,589
Bean cake.	
Japan	652,687
Europe	62,775
Bean oil.	
Japan	1,443
Europe	59,849

Percentage of Manchurian area sown.

	1929	1928
Soybeans	29.2	29.0
Other beans	2.7	3.2
Kaoliang	22.5	22.5
Millet	17.2	16.9
Corn	6.9	7.8
Wheat	9.7	10.2
Paddy rice	0.6	0.7
Upland rice	0.9	0.8
Miscellaneous grains	10.5	9.2

Monday, April 14, 1930.

Dairen, Manchuria.

Went to the American Consulate in the morning, and discussed with Mr. Langdon, the Consul, the soybean industry in South Manchuria. He has collected statistics on the exports of beans, bean cake and bean oil and gave us a summary of such data for 1929, which is as follows:

Exports - Manchuria - 1929.

Tons (short).

Soybeans.	
Japan	604,723
Europe	1,403,589
Bean cake.	
Japan	692,627
Europe	66,775
Bean oil.	
Japan	1,447
Europe	59,845

Percentage of Manchurian area sown.

	1929	1920
Soybeans	29.3	29.0
Other beans	2.7	3.2
Kaoliang	22.3	22.3
Millet	17.2	16.9
Corn	6.3	7.8
Wheat	9.7	10.2
Paddy rice	0.6	0.7
Upland rice	0.3	0.3
Miscellaneous grains	10.3	9.2

Tuesday, April 15, 1930.

Dairen, Manchuria.

In the morning visited Mr. Satoh of the S. M. Ry. with reference to soybean oil mills and soap factories using soybean oil, in Dairen. Arrangements were made to visit the oil mill of the Mitsubishi Trading Co.

About 2:00 p. m. with Mr. Li of Mr. Satoh's office, we went to the Mitsubishi Soybean Oil Mill where we met the Manager, Mr. Yoshida. We were then taken through the mills and had an opportunity of seeing the whole process of crushing soybeans for oil with hydraulic pressure. This Oil Company crushes about 300,000 tons of soybeans yearly, producing about 270,000 tons of bean cake and about 30,000 tons of bean oil.

In addition to crushing the above amount of beans at its mills in Dairen, the Mitsubishi Co. also buys bean oil and bean cake from outside oil mills. This company ships from 500 to 1000 tons of bean cake meal per month to the United States through the ports of Seattle, San Francisco, and New Orleans. Coarse and fine meals are made especially for shipment to the United States.

The American trade demands a meal about the texture of corn meal and this is used principally for cattle and poultry feed. This meal is shipped in 100-pound fine quality burlap bags and sells F. O. B. San Francisco at $38.00 per ton (2,000 lbs.) . In shipping meal to America, a certificate from the S. M. Ry. Central Laboratory is used showing that the meal contains: Moisture, 10%; fat, 6.87%; and protein, 45%.

In the European bean cake trade, much trouble results from the rather high moisture content of the cake. The cakes show 17% moisture and during shipment to European countries, a mold develops. The Mitsubishi Co. has developed a drying process reducing the moisture content of the cake to 13% but as this requires more raw material 10 sen more per cake is charged. For the European trade a different standard of guarantee of analysis is used. The certificate must show that the bean cake contains 50 or more per cent of fat and protein.

For Japanese trade, where bean cake is used chiefly for fertilizer, and to a slight extent for poultry feed, the cakes are ground into a very coarse meal.

Permission was given us to take any pictures we might wish within the mills or mill yard by Mr. Yoshida. He also promised to send us samples of the different forms of soybean cake meal that the company produces for export.

Wednesday, April 16, 1930.

Dairen, Manchuria.

In the morning visited the Mangylku Soap Mfg. Co. where crude soybean oil and hydrogenated soybean oil are used in the manufacture of soaps. These forms of oil are used only in the makingof laundry and wash soaps. Samples of two kinds of soap and the ingredients - pine tree resin, hydrogenated soybean oil, crude soybean oil and cows fat - that are used in the manufacture of the soaps, were given us for our soybean exhibit.

We were given by Mr. Satoh of the S. M. Ry. bulletins, one on the flora of Manchuria and one on the wild legumes of Manchuria, for our work on collecting seed of wild legumes in Manchuria, North China and Chosen.

In looking over the list of wild legumes compiled for North China, Mongolia, Manchuria, Siberia and Chosen, the list shows 28 genera and 102 species. Mr. Satoh suggested that we get in touch with Dr. Sato, botanist and author of the bulletins, as he might be of assistance to us in our collections of wild legumes in Manchuria, North China and Chosen. It seems that Dr. Sato works more or less in cooperation with the Bureau of Agriculture of the S. M. Ry. and lives at Port Authur.

Thursday, April 17, 1930.

Chinchou (Kinshu), Manchuria.

We left at 12:30 p. m. by bus for Chinchou, where the Kantocho Agr. Exper. Sta. of the Kwangtung Government is located. This is the only experiment station of the Japanese Kwangtung Government in the Leased Territory.

Arrived about 1:30 p. m. and took a basha to the experiment station, where we met Mr. Sadao Nakatomi, Agricultural Engineer and Assistant Director of the station. The following lines of work are carried on at the station: cotton breeding, entomology, chemistry, pathology, horticulture and animal husbandry. The station has under its control about 125 acres.

We were shown through the various laboratories, first going to the soils laboratory where soil technology and soil classification are being carried on. There is an especially well-equipped entomological laboratory where the principal investigations are with apple insect pests. Extensive work is being carried on with cotton breeding. The native varieties which are rather tall growing and have an extensive root system have been displaced in the Kwangtung Province by selections from crosses between the best Chosen improved varieties and the native varieties. The northern limit of cotton growing is said to be Mukden, but north of the Leased Territory only the native varieties are grown.

In animal husbandry, much attention is being paid to the improvement of native Chosen cattle through selection for farm work. The Chosen cattle are also being crossed with

with the native Manchurian cattle. The station has three herds of well selected Chosen cattle. More or less work is being carried on in the improvement of the native Manchurian hog by crossing with the Berkshire. There is a large poultry division testing different breeds of poultry and methods of incubation. Work is also being carried on to improve the native stock by selection and crossing with introduced standard breeds.

In the Horticultural Department, the most extensive work is being carried on with apples. About 1000 acres of apples are being planted annually in the Kwangtung Province and within ten years, the apple acreage will exceed that of Chosen. The station furnishes free of charge, hundreds of young apple trees to farmers. Many varieties of grapes are beingtested and include European, native Chinese and Manchurian varieties. The station has an excellent pear orchard consisting of native Japanese and Chinese sorts. With peaches, a large collection of native Chinese varieties arebeing tested.

In talking with Mr. Nakatomi concerning wild legumes, he stated that there are several wild legumes in this section. The wild soybean is very abundant throughout this vicinity and two wild alfalfas occur, one with blue flowers and the other with white flowers.

No soybean work is being carried on by the station. Most of the work is placed on cotton and apples. In the region between Dairen and Chinchou, kaoliang and millet are grown most extensively, although corn and soybeans are also grown. Mr. Nakatomi assured us of his hearty cooperation in our studies of South Manchurian Agriculture.

Friday, April 18, 1930.

Dairen, Manchuria.

The past two or three days have been very mild and spring-like with the result that forsythias, pears and apricots are in full bloom. The flowering cherries are in bud and should be in full flower within the next week.

In the morning we went to the South Manchurian Ry. Central Laboratory to see Dr. Kato concerning the various soybean products of which he had promised us samples. The products were not ready and it was promised to send them to our office in the Gohin Building shortly.

Dr. Kato is much interested in the utilization of soybean flour in bread making and is conducting extensive experiments alongthis line. He was much interested in the work which Dr. J. A. Le Clerc of the U. S. Bureau of Chemistry is doing with various kinds of soybean flour and intends taking up correspondence with Dr. Le Clerc.

At 5:00 p. m. Messrs. Morse and Suyetake went to the Auditorium of the South Manchurian Ry. Club and gave a talk on the soybean industry in the United States before members of the Dairen Oil Mills Association, Dairen Soybean Trading Corporation and the Agricultural Division of the South Manchurian Railway.

Saturday, April 19, 1930.

Dairen, Manchuria.

From the bulletins on the legume flora of North China, Mongolia, Manchuria, Siboria and Chosen, the various species and genera of wild legumes were put in tabular form as per attachod sheet. The following table shows the total distribution of genera and species.

Country	Genera	Species
Manchuria	26	67
Mongolia	17	63
North China	21	43
Korea	21	39
Siberia	15	33

Sunday, April 20, 1930.

Dairen, Manchuria.

Weather much colder today and very windy and dusty. Wrote some official correspondence and worked on Manchurian soybean and wild legume data.

In late afternoon visited the Electric Park and found the single pink flowering cherries in full bloom. At this time the park presented rather an attractive appearance for pears, forsythias, apricots and plums were in full bloom. The flowering plum is used here as a hedge plant as has also been observed at other places in Dairen.

Monday, April 21, 1930.

Dairen, Manchuria.

In the morning we went to the office of Mr. Satoh of the S. M. Ry. and found a package of fifteen varieties of soybeans that had been sent to us from the S. M. Ry. Exper. Sta. at Kungchuling. This station is the principal soybean breeding station and the varieties sent us represent selected varieties from their 1929 variety test of over five hundred varieties. The following list gives the varieties sent.

D.&M. #.	Varietal name.	Use.
5649	Hakubo (Mukden White)	Grain.
5650	Changchung #220.	Forage.
5651	Kingen	Grain.
5652	Kungchuling #319.	Pasture.
5653	Kohoshu.	Grain.
5654	Kungchuling #543	Pasture.
5655	Kungchuling #483.	Pasture.
5656	Kaiyuan #191.	Forage.
5657	Mosheto	Forage.
5658	Kungchuling #480	Pasture.
5659	Kungchuling #235	Grain.
5660	Chanchu #591.	Forage.
5661	Kungchuling #262	Grain.
5662	Kungchuling #420	Grain.
5663	Kungchuling #224	Grain.

In the afternoon samples of different forms of soybean oil cake and oil cake meal were received from Mr. Yoshida, manager of the Mitsubishi Soybean Oil Mills. The following list gives the samples sent with data concerning each.

#5664 - Coarse flakes. Made for export to Japan for cattle feed and fertilizer.

Moisture	11%
Protein	44%
Fat	7.5%

#5665 - Finely cracked, like cracked corn. Made for export to Japan for cattle feed.

Moisture	10%

Fat 7 %
Protein 44.5%

#5666 - Coarse meal for export to the United Statesfor cattle feed.
Moisture 9.11 %
Fat 7 %
Protein 45.6 %

#5667- Finely ground meal for export to the United States.
Moisture 9.10%
Fat 7 %
Protein 45.6 %

#5668 - Medium coarse flakes for export to Japan for poultry feed.
Moisture 10 %
Fat 7 %
Protein 44.5 %

#5669 - Coarse flakes for export to Japan for fertilizer.
Moisture 11 %
Fat 7.5 %
Protein 44 %

#5670 - Price of round soybean oil cake.

These samples were assigned D. & M. numbers, written up and made ready for shipment to the Department of Agriculture.

Tuesday, April 22, 1930.

Dairen, Manchuria.

We had a card of introduction from Mr. Hamma of the Yamato Seed Co., Sapporo, Hokkaido, to Mr. Minoru Ohara, who represents the Manshu Nosan Shokai, Inc.,(Wholesale Seed Growers and Collectors, Dairen, So. Manchuria.)

A visit was made to Mr. Ohara to obtain information concerning seed of wild plants in Manchuria. Especially wild legumes. We were advised that his company collects considerable seed of kudzu which for the most part is sold to the Sakata Seed Co., Yokohama. From 400-500 pounds of seed are sold directly to dealers in the United States.

Kudzu seed is collected as far north as Mukden and toward Antung. The northern limit for the plant seems to be Mukden. Seed sells to Japanese firms for 60sen per pound, while that sold to the United States sells for 60 cents per pound.

It was rather interesting to find that this company sells large quantities of Zoysia pungens, var. Japonica as Manchurian lawn grass. This species is perennial, very hardy, suitable for golf courses and aviation fields, and occurs throughout Manchuria and Chosen. The seed is sold principally to Japan, Chosen, and Manchuria, being used for aviation fields, fairways on golf courses, and lawns. The seed matures in June and much of it is collected in the vicinity of Chinchou, Japanese Leased Territory.

A sample of Manchurian kudzu seed grown between Mukden and Antung was given us and assigned D. & M. #5682.

Mr. Ohara seems to be well acquainted with the lefumes and other wild plants of Manchuria, and will be glad to assist us in collecting seed of wild legumes. Two wild alfalfas are said to occur in South Manchuria, one with yellow flowers and one with purple flowers.

Wednesday, April 23, 1930.

Dairen, Manchuria.

The day has been rather cool and cloudy with slight rains.

Some official correspondence was written during the morning. One letter was written to Dr. Pieters of Forage Crops Office with regard to Zoysia pungens, var. Japonica, listed by Mr. Ohara, seed collector in Dairen. As this is a hardy perennial occurring throughout Manchuria and Chosen, it is apparently the same species growing in Kokai, Northern Chosen, and the one desired by Dr. Pieters. It was requested of Dr. Pieters if he desired a quantity of seed of this species listed by Mr. Ohara.

After lunch we went to the office of Mr. Satoh of the S. M. Ry. to obtain samples of seed of soybeans collected in the grading division of the S. M. Ry. Wharf. Twenty samples of yellow seeded beans from different points along the Manchurian Ry. were given us by Mr. Satoh. He advised that the inspection division would continue to collect samples from various points as they come in.

Information on the use of soybean oil cake and cake meal in the United States was requested by Mr. Satoh. He is trying to bring about greater use of these products in Japan for cattle and poultry feed. At the present time 90 % of the Manchurian soybean cake exported to Japan is used for fertilizing purposes, leaving 10% for all other purposes, chiefly cattle feed.

Thursday, April 24, 1930.

Dairen, Manchuria.

Two parcel post packages, # 194 and 195 were put up and shipped to Mr. Ryerson to whom also a letter was written explaining the shipments and inclosing the second sheets for samples of seed sent. These packages contained the soybean seed samples received from the Kungchuling Experiment Station and the inspection division of the Dairen Wharf.

Correspondence from Prof. J. G. Hackleman of the Illinois College of Agriculture indicated that he was desirous of having Mr. Kurihara of Tokyo collect soybean products that they could use at the 1930 annual meeting of the American Soybean Growers Association. Mr. Suyetake wrote Mr. Kurihara advising him of the various soybean products we collected in Tokyo the past winter and the sections of the city where they can be found.

Thursday, April 24, 1930.

Dairen, Manchuria.

Two parcel post packages, # 134 and 135 were put up and mailed to Mr. Hyerson to whom also a letter was written explaining the shipments and including the second sheets for samples of seed cake. These packages contained the soybean seed samples received from the Kungchuling Experiment Station and the Inspection division of the Dairen Wharf.

Correspondence from Prof. J. G. Bachelman of the Illinois College of Agriculture indicated that he was desirous of having Mr. Kurihara of Tokyo collect soybean products that they could use at the 1930 annual meeting of the American Soybean Growers Association. Mr. Suyetake wrote Mr. Kurihara giving him of the various soybean products we collected in Tokyo the past winter and the sections of the city where they can be found.

Friday, April 25, 1930.

Port Arthur, Manchuria.

Left by bus at 9:00 a. m. to visit Port Arthus in order to visit the Agricultural Department of the Kwantung Government and Mr. Sato, Botanist, who collaborates with the S. M. Ry. The general topography along the way was rather mountainous but more or less farming was carried on in the villages and alongthe hillsides.

We had been given a card of introduction to Dr. Shino, Chief of the Agricultural Department of the Kwangtung Province and Director of the Kwangtung Province Experiment Station at Chinchou (Kinshu) by Dr. Terao of the Japanese Department of Agriculture at Tokyo. We went at once to the office of Dr. Shino and found that he had a letter from Dr. Terao advising of our coming to Manchuria.

Dr. Shino gave us a general outline of the agricultural conditions in the Kwangtung Province. No experiments were being conducted with soybeans as the soybean experimental work is left entirely to the experiment stations of the S. M. Ry. Agricultural Bureau. Considerable quantities of soybeans are grown in the Kwangtung Province but chiefly in mixed plantings, that is, between hills of corn. Large shipments of soybeans and soybean oil cake are made to China and the East Indies from the Port Arthur Wharves.

The peanut is grown very extensively throughout the Leased Territory. In 1928 the peanuts produced in Kwangtung had a value of more than 6,000,000 Yen. More than 3,000,000 Yen of peanuts were exported from Port Arthur through the

ports of Shanghai and Chintao to Europe and America. Generally these peanuts are known as Shanghai or Chintao peanuts and but little known as Kwangtung peanuts. About 1,000,000 koku of peanuts in shell were produced in Kwangtung in 1928.

The principal lines of work being carried on by the Kwangtung Experiment Station is horticultural work. Especially pomology and cotton breeding. Some work is also being done toward the improvement of native livestock and poultry. Dr. Shino advised that if there is anything he or his staff of co-workers could to do to help us in our agricultural exploration work in Manchuria he would be glad to have us call on him at any time.

After our visit with Dr. Shino we looked up Mr. Sato, botanist, and had rather a difficult time in locating his home. After finding it, however, we learned that Mr. Sato had been suddenly called to Mukden and would not return until tomorrow. He will probably visit Dairen tomorrow afternoon and we would have an opportunity of seeing him at the agricultural office of the S. M. Ry.

We then visited the museum and looked over the agricultural exhibits of the Kwangtung Province. The Nisshin Oil Mills of Dairen has rather an extensive exhibit of various forms of soybean oil and oil cake. The Manchuria Paint Co. of Dairen has a very good exhibit of many kinds of paints, enamels, varnishes and plastic paints in the manufacture of which soybean oil was used. In the botanical department of the museum, there is a very large exhibit of plants commonly used in China and Manchuria for medicinal purposes. Many cases of herbarium specimens of the flora of

Friday, April 25, 1930. (cont.)

Manchuria were on exhibit.

The Port Arthur Botanic Garden is located quite near the museum and along the water front. The garden contains a very large number of Japanese flowering cherries which at this time are about three-fourths in bloom. The flowering cherry is planted quite extensively along the streets of the new town of Port Arthur, that is the portion known as the Japanese section. In addition to the flowering cherry, the garden and adjacent part contains a good collection of shrubs and flowering plants though not varying much in general.

Saturday, April 26, 1930.

Dairen, Manchuria.

In the morning wrote official correspondence, among which was a letter to Dr. Pieters of Forage Crop Office requesting seed of various forage and pasture crops for Mr. Sadao Nakatomi, Assistant Director of the Kantcho (Kwangtung) Agr. Exper. Station, Chinchou (Kinshu), South Manchuria.

A list of the wild legumes of Manchuria, North China and Chosen that are of possible value for forage and green manure in the United States was compiled as follows after today's notes.

In the afternoon, a visit was made to the new Japanese shopping section where an exhibition of the products of the Kwangtung Province was on display in various stores. The Manchuria Paint Co. had an extensive exhibit of paints, enamels, varnishes and plastic paints made of soybean oil. Other exhibits of soybean products were by soap companies and the hydrogenated oil company. Two small cans of T. M. C. soybean oil lard substitute, cakes of soybean oil soaps, and boxes of soybean oil soap powder were purchased for the Forage Crop Soybean Exhibit.

Saturday, April 26, 1930.

Seiren, Manchuria.

In the morning wrote official correspondence, among which was a letter to Dr. Fletcher of Forage Crop Office requesting seed of various forage and pasture crops for Mr. Sadao Nakatani, Assistant Director of the Kantoku (Kwangtung) Agr. Exper. Station, Chinchow (Kinsen), South Manchuria.

A list of the wild legumes of Manchuria, North China and Chosen that are of possible value for forage and green manure in the United States was compiled as follows after today's notes.

In the afternoon, a visit was made to the new Japanese shipping section where an exhibition of the products of the Kwangtung Province was on display in various stores. The Manchuria Paint Co. had an extensive exhibit of paints, enamels, varnishes and plastic paints made of soybean oil. Other exhibits of soybean products were by soap companies and the hydrogenated oil company. Two small cans of T. H. C. soybean oil lard substitute, cakes of soybean oil soap, and boxes of soybean oil soap powder were purchased for the Foreign Crop Soybean Exhibit.

WILD LEGUMES IN MANCHURIA, MONGOLIA, NORTH CHINA, SIBERIA AND KOREA.

Species	Manchuria	Mongolia	N. China	Korea	Siberia	N. America.
Albizzia Julibrissin	X		X	X		
Cassia mimosoides	X		X	X		
Gleditchia japonica	X		X			
G. japonica, var. inermis				X		
G. caspica	X					
Maakia amurensis	X			X		
Sophora flavescens	X	X	X	X	X	
Styphnolobium japonicum	X		X	X	X	
Thermopsis fabacea	X		X	X		X
Th. lanceolata		X				
Crotalaria sessilfolia	X		X	X		
Medicago falcata	X					
M. lupulina	X	X			X	
M. ruthenica	X	X			X	
Melilotus suaveolens	X	X	X	X	X	
Trifolium lupinaster	X	X	X	X	X	
Astragalus adsurgens	X	X	X	X	X	X
A. dahuricus	X	X	X		X	
A. fruticosus		X				
A. uliginosus	X			X	X	
A. chinensis	X		X			
A. melilotoides	X	X			X	
A. membranaceus	X	X	X		X	
A. penduliflorus		X			X	
A. scaberrimus	X	X	X		X	
A. complanatus	X	X	X			
A. tenuis		X				
A. arenaria	X	X			X	
A. galactites		X			X	
A. laguroides		X				
A. Laximanni	X	X				
A. monophyllus		X				
Caragana frutescens	X					
C. aborescens	X	X			X	
C. microphylla	X	X			X	
C. Chamlagu	X		X	X		
C. pygmaea		X			X	
Glycyrrhiza echinata		X				
G. pallidiflora	X		X			
G. uralensis	X	X			X	
Guldenstidtia multiflora	X		X			
G. pauciflora	X	X	X	X		
G. monophylla		X				
Indigofera kirilovii	X	X		X		
Oxytropis caerulea		X			X	
O. grandiflora	X				X	
O. hirta	X	X	X			

WILD LEGUMES IN MANCHURIA, MONGOLIA, NORTH CHINA, SIBERIA AND KOREA (cont).

Species.	Manchuria.	Mongolia.	N. China.	Korea.	Siberia.	N. America.
Oxytropis myriophylla		X	X		X	
O. ciliata		X				
O. Diantha		X				
O. glabra		X			X	
O. heterophylla		X				
O. leptophylla		X				
O. lycotriche		X				
O. manshurica	X	X	X			
O. micrantha		X				
O. microphylla		X				
O. ochrantha		X				
O. oxyphylla		X				
O. racemosa		X				
Swainsonia Salsula		X			X	
Aeschynomene indica	X		X	X	X	
Desmodium Oldhami	X		X	X	X	
D. podocarpum	X	X	X	X		
Hedysarum sibericum	X	X			X	
H. escuentum	X				X	
H. obscurum					X	
H. brachypterum		X				
H. fruticosum		X				
H. laeve		X				
H. polymorphum		X				
H. setigerum		X				
Lespedeza bicolor	X	X	X	X		
L. cuneata	X	X	X	X	X	
L. cyrtobotrya	X			X	X	
L. medicaginoides	X	X	X			
L. stricta, Var. stipulacea	X	X	X	X		
L. tomentosa	X		X	X		
L. trichocarpa	X	X	X		X	
L. virgata	X			X		
L. floribunda	X		X			
Falcata japonica	X			X		
Glycine tomentosa	X					
G. ussuriensis	X	X	X	X		
Lathyrus alatus	X			X		
L. Davidii	X		X	X		
L. humilis	X			X	X	
L. maritimus	X		X	X		
L. Balustris	X	X	X	X		
L. Pratensis		X			X	
L. subrotundus	X					
Azukia minima	X		X	X		
A. pendula	X		X	X		
Vicia amaena	X	X	X	X	X	
V. cracca	X	X	X	X		
V. multicaulis		X			X	
V. pallida, var. silvatica	X			X		
V. pseudo-orobus	X	X	X	X		
V. tridentata	X	X	X	X		

WILD LEGUMES IN MANCHURIA, MONGOLIA, NORTH CHINA, SIBERIA AND KOREA

Species	Man-chu-ria.	Mon-gol-ia.	N. Chi-na.	Ko-rea.	Si-ber-ia.	N. Amer-ica.
Vicia venosa	X			X		
V. unijuga	X	X	X	X		
Pueraria thunbergiana	X		X	X		

Sunday, April 27, 1930.

Dairen, Manchuria.

We made a botanical survey of the mountain sides in the vicinity of Dairen to obtain an idea of the perennial and other legumes in this section. In the valleys extending about one-half way up the mountains two species of Vicia and one species of Lathyrus were noted. These had made a very good early growth ranging from 12 to 18 inches high. These species were quite abundant in many places, especially around trees and tree stumps.

Two wild legumes were found in full bloom, both perennial and the growth rather small. One with creamy white flowers is Astragalus scaberrimus and the other, purple flower, is also an Astragalus sp. Both of these should have mature seed in June. Two species of annual lespedezas were found of last year's growth and good seed was gathered from plants of each. Seed of these same species weresent in last season from different parts of Chosen. Kudzu plants were noted in a few places and also two species of perennial lespedezas which were just starting the new growth.

It is apparent from this survey that seed of some species of wild legumes as well as grasses growing under rather adverse conditions may be collected this season.

Sunday, April 27, 1930.

Bairen, Bamburia.

We made a botanical survey of the mountain sides in the vicinity of Bairen to obtain an idea of the perennial and other legumes in this section. In the valleys extending about one-half way up the mountains two species of Vicia and one species of Lathyrus were noted. These had made a very good early growth ranging from 12 to 18 inches high. These species were quite abundant in many places, especially around trees and tree stumps.

Two wild legumes were found in full bloom, both perennial and the growth rather small. One with creamy white flowers is Astragalus sonderianus and the other, purple flower, is also an Astragalus sp. Both of these should have mature seed in June. Two species of annual leguminosae were found of last year's growth and good seed was gathered from plants of each. Seed of these same species were secured in last season from different parts of Gheem. Young plants were noted in a few places and also two species of perennial leguminosae which were just start-ing the new growth.

It is apparent from this survey that most of some species of wild legumes as well as grasses growing under rather adverse conditions may be collected this season.

Monday, April 28, 1930.

Chinchou, Manchuria.

Left about 11 a. m. by bus for Chinchou to observe planting conditions and to make observations concerning wild legumes in Chinchou section. The road on the wall surrounding Chinchou was first visited. Considerable quantities of Astragalus scaberrimus in full bloom was found along the road and growing in rather thin soil. This will be an excellent place to gather a considerable quantity of seed if the plants are left undisturbed.

Several plants of alfalfa were noted and apparently of different strains though a few plants appeared to be of the Medicago falcata species. These plants have made an excellent early growth and may be the wild species mentioned by Mr. Nakatomi. Many of the plants look like crosses between M. falcata and M. sativa.

Along the edges of the wall dried plants of an annual lespedeza were found which are much like the Korean lespedeza. Many of the plants had excellent seed and sufficient was gathered for a test to send Dr. Pieters.

A species of sweet clover, possibly Melilotus suaveolens was found at several places along the wall. The plants were about 15 inches high having made an early spring growth. The road of the wall seems an excellent place to collect seed of some wild legumes at the proper seasons.

After our survey of the wall road we started back on the main road to Dairen. The farmers were quite busy in the fields but little planting was being done. For the most part, the farmers were placing small piles of compost soil

in the fields (see picture #45091). Sorghum, corn and millet were the crops being planted. The typical Chinese wooden plow was being used to open a furrow. A planter with a basket of kaoliang seed followed the plow and scattered the seed rather thickly in the furrow by hand. (See picture #45090). Following the planter comes a man scattering baskets of compost soil in the furrow covering the seed. On the return of the plow a new furrow is opened. The furrow, after the seed is sown, is leveled by a V-shaped wooden implement. This was followed by a small oval shaped roller drawn by a donkey, to compact the soil over the seed.

Several farmers were seen planting millet using for sowing the seed the kaoliang-gourd seeder like the one obtained by Dorsett in North Manchuria. A few farmers were found planting corn, the seed being spaced about 42 inches apart in the rows (5 seed per hill). All the rows for the various crops were about 21 inches apart.

A considerable number of apple orchards were noted about Chinchou and well down the road. For the most part, the orchards are young and no doubt the trees furnished by the experiment station at Chinchou.

The land throughout is rolling, and hilly extending to the mountains. The soil is of a sandy loam type and very rocky. The region seems especially well adapted to fruit growning.

Negative #45090.
Andropagon sorghum.
Kaoliang. View showing the planting of kaoliang on a farm near Chinchou. The seed is scattered along the furrow and then compost is scattered on the seed. After furrow is leveled, the soil is compacted with small stone rollers.

Negative #45091. Manchurian farm field. Chinchou, Manchuria. View of a Manchurian field near Chinchou showing piles of compost soil which is scattered on seed in the furrows.

Tuesday, April 29, 1930.

Dairen, Manchuria.

In view of the finding of some wild legumes about Chinchou, it was thought advisable to make a survey of some of the mountains near Dairen as to the flora. Several legumes were found along the way until two-thirds of the way to the summit and from there to the summit no legumes, except two types of perennial (bush clover) lespedezas were found. In the gullies and some exposed places, many patches of Astragalus scaberrimus and another Astragalus sp. were found. Both of these species were in full bloom and in one instance a few full grown pods were found on some plants of Astragalus scaberrimus.

Numerous dried plants of Korean lespedeza and the button lespedeza (both annuals) were found along the mountain side. Good seed was obtained from plants of both species to send Dr. Pieters.

In several gullies a species of Lathyrus and two species of Vicia were found. All had made a good early growth but as yet were not in bloom.

Near the base of the mountain and generally along gullies a dwarf blue iris about 4-6 inches high was found in bloom. According to Mr. Suyetake this is Iris siberica. In descending the mountain another iris species was found but not yet in bloom. This is thought to be Iris tectorium.

Although quite a section of the mountain was covered there were no signs of clovers or alfalfas. The survey indicated, however, that many kinds of legumes may be gathered from early spring until late fall.

Monday, April 29, 1930.

Baiten, Manchuria.

In view of the finding of some wild legumes about Changchun, it was thought advisable to make a survey of some of the mountains near Baiten as to the flora. Several legumes were found along the way until two-thirds of the way to the summit and from there to the summit no legumes, except two types of perennial (pink clover) legumes were found. In the gullies and some exposed places, many patches of Astragalus sesbertiana and another Astragalus sp. were found. Both of these species were in full bloom and in one instance a few full grown pods were found on some plants of Astragalus sesbertiana.

Numerous dried plants of Korean Lespedeza and the Bicolor Lespedeza (both annuals) were found along the mountain side. Good seed was obtained from plants of both species to send Dr. Piper.

In several gullies a species of Lathyrus and two species of Vicia were found. All had made a good early growth but as yet were not in bloom.

Near the base of the mountain and generally along gullies a dwarf blue iris about 4-6 inches high was found in bloom. According to Dr. Sugodoe this is Iris ajanensis. In descending the mountain another iris species was found but not yet in bloom. This is thought to be Iris tectorium.

Although quite a section of the mountain was covered there were no signs of clovers or alfalfas. The survey indicated, however, that many kinds of legumes may be gathered from early spring until late fall.

Wednesday, April 30, 1930.

Dairen, Manchuria.

The day has been cold and cloudy with slight rains during different parts of the day. In the morning wrote notes on botanical specimens and soybean products.

After lunch visited Mr. Satoh of the South Manchurian Ry. with reference to a visit to their experiment station at Hsiungyaocheng about 111 miles from Dairen and outside the Leased Territory. Mr. Satoh thought it would be well to visit this station and section as it is quite different from their other stations farther north. Some soybean work is being carried on; about 60 varieties being under test. The principal lines of work are horticultural, cotton breeding, and wild silk culture. Mr. Satoh advised that he would phone the director stating the time of our visit.

In discussing the collecting of kudzu seed, Mr. Satoh stated the most of the seed sold is gathered between Mukden and Antung, although considerable seed is collected between Mukden and Dairen. Kudzu occurs but little north of Mukden.

Wednesday, April 30, 1930.

Beirut, Lebanon.

The day has been cold and cloudy with slight rains during different parts of the day. In the morning wrote notes on botanical specimens and sylvan products.

After lunch visited Mr. Eaton of the South American Ry. with reference to a visit to their experiment station at Kalamyoonbeng about 111 miles from Beirut and outside the leased territory. Mr. Eaton thought it would be well to visit this station and question as it is quite different from their other stations further north. Some cotton work is being carried on about 60 varieties being under test. The principal lines of work are horticultural, cotton breeding, and milk culture. Mr. Eaton advised that he would phone the director showing the time of our visit.

In discussing the collecting of Kudzu seed, Mr. Eaton stated the most of the seed sold is gathered between Kudzu and Antung, although considerable seed is collected between Kudzu and Dairen. Kudzu occurs but little north of Kudzu.

Thursday, May 1, 1930.

Dairen, Manchuria.

The day was rather cold and cloudy. In the morning went to the office and wrote up soybean products and seed collected recently.

After lunch we went to Reservoir Park where they have a large collection of Japanese cherries in full bloom. We found a good showing of several varieties of cherries but the most part the trees are of the single pink type. The trees are arranged rather prettily and the park was well crowded with Japanese enjoying the flowers and picnic lunches. The park is under control of the Kwangtung government and the Park Department has a large collection of Prunus sp. in a nursery in the park. A few photos were taken with fair results as the afternoon was rather cloudy.

A letter from Dr. Vavilov, Director of Applied Botany Institute, Leningrad, Russia, was received in answer to our request of him for information as to travel conditions through Russia on our return to the United States.

Negative #45092. Prunus sp. Japanese flowering cherries. View of Japanese cherries around circle in park, Dairen, Manchuria.

Negative #45093. Prunus sp. Japaneseflowering cherries. View of Japanese flowering cherries in a park. Dairen, Manchuria.

Friday, May 2, 1930.

Hsiungyaocheng, Manchuria.

We left on the 9:00 a. m. express for Hsiungyaocheng where one of the experiment stations of the S. M. Ry. is located. Along the road between Dairen and Chinchou especially as we approached Chinchou, numerous orchards were noted, mostly apple. Occasionally some peach orchards in full bloom were seen. In the vicinity of Chinchou apple orchards, some of them quite extensive, were quite numerous.

Arrived at Pu-lan-tien about 10:30 a. m., and apple orchards, especially young ones, were quite numerous. A few vine yards were also noted but these were not very extensive in size. The boundary line of the Kwangtung Leased Territory lies between Pu-lan-tien and Tien-chia, which are about 10½ miles apart. The line is said to be about 4 miles below Tien-chia but the custom office is located at Pu-lan-tien.

Arrived at Wa-Fang-tien about 11:00 a. m. About this section were noted many young apple orchards from 4-5 years old. There is no stop with the express between this station and Hsiungyaocheng. After passing out of Wa-Fang-Tien, a few apple orchards to the north but not many more were seen until we approached Chiu-Chai, about 12:05 p. m. where many young orchards were noted. The entire country from Dairen to Hsiungyaocheng was more or less rolling or hilly extending to the mountains on either side. The soil is of a red sandy loam and quite rocky, making it especially suitable for orcharding.

Arrived at Hsiungyaocheng at 12:11 p. m. where we were

met by Mr. Kaneyasu Hisatake, agricultural engineer of the S. M. Ry. experiment station. As we had our lunch on the train we went directly to the experiment station and Mr. Hisatake advised us of the agricultural crops and conditions in this section.

Kaoliang, millet and corn are the principal crops grown in this region with soybeans planted between the hills of corn. At this time most of the crops have been planted with the exception of the soybeans. This crop is planted between the hills of corn (which are about 42 inches apart) when the corn plants are 5-6 inches high, about the first week in June. Peanuts are grown quite extensively in the low lands where sandy soil predominates.

This station is testing about sixty (60) varieties of soybeans under the direction of Mr. Hisatake. About 90% of the soybeans planted in this vicinity consists of a greenish yellow variety called "Te-cha-chin" which is used for oil and is also utilized by the farmers for bean curd, miso and other food purposes. Only about 10 % of the beans planted are yellow seeded varieties, the principal one of which is called "Ho-an-tou".

Quite extensive cotton breeding work is being carried on. The native Manchurian varieties crossed with Chosen and American varieties are giving much superior results to the native sorts.

Very extensive work is being conducted by the Forestry Department in reforestation of the mountain regions with pines and oaks, the latter being used for wild silk worm culture.

Friday, May 2, 1930. (cont).

Hsiungyaocheng, Manchuria.

We were taken over the experimental fields and had an opportunity of seeing the native methods of planting corn, between the hills of which soybeans will be planted about a month later. After our visit to the fields we were taken to see the station laboratories. Considerable work is being done in Entomology and Pathology, especially apple pests and diseases. Apples and pears do exceedingly well in this region and orchards are increasing rapidly each year through the efforts of the experiment station.

We were taken to the Entomological laboratory where we met Mr. Yasuo Arakawa, who took post graduate work at Cornell in 1925 and speaks English very well. He stated the worst insect pest of the soybean in Manchuria is the pod borer which we observed so abundantly in Hokkaido last season. This insect is especially serious in North Manchuria where often 50 % of the seed crop is injured.

At the pathological laboratory, we found an extensive herbarium collection of Manchurian plants. We were especially interested in the wild legume specimens, but were advised that there are not many species of wild legumes in this section.

The station maintains a museum in which are shown the work of the station and the principal crops and products of the region. Wild silk culture is carried on extensively by the natives in the foot hills where the silk worms feed on the scrub oak. The experiment station is doing much work in the imrpovement of the wild silk culture.

As it was rather late, we went to the Japanese Inn, the Onsen, which we found crowded with school boys, but fortunately we had had a room reserved.

Negative #45094.

Soja max. Soybean and corn planting.

View showing the leveling of a furrow in which corn has been planted at intervals of about 42". When the corn is about 6" high soybeans are planted between the corn hills.

Negative #45095.

Corn and soybean planting. Scattering compost soil in the furrow after corn has been planted. After the soil is scattered, the furrows are leveled.

Negative #45096.
Corn and soybean planting. View showing a Manchurian farmer plowing a furrow in which corn is to be planted at intervals of 42". When corn is 6" high soybeans are planted between the corn hills.

Negative #45097.
Soybean and corn planting. View showing the planting of corn by Manchurian farmers. The furrow is made in the middle of a last year's row. When the furrow is made, the planter follows dropping 4-5 grains of corn about 42" apart in the row. When the corn is 5-6" high soybeans are planted between the corn hills.

Saturday, May 3, 1930.

Hsiungyaocheng, Manchuria.

After breakfast at the Inn we went to the Experiment Station where we met Dr. Riuzo Watanabe, Director of the Station, and whom we had met in Washington, D. C. in 1925. Dr. Watanabe speaks fairly good English and talked with us some time concerning agricultural conditions in this section. He stated that the soybean is not the principal field crop and that the method of culture is quite different from the sections farther north where the soybean is the main crop.

About 10:00 a. m., with Mr. Hisotake, Dr. Kusame, and a Chinese servant, we took bashas and went to a Chinese farming community about two miles out of town. We were advised that it is rather dangerous to go very far from the towns on account of bandits. At this season the bandits resort more to the hills but as the crops grow up they approach the outskirts of the town hiding in the kaoliang and other crops. The basha drivers have certain limits at different seasons to which they will go outside of town as the bandits rob them of their horses.

In the farming section we visited, the farmers were busy everywhere planting corn, millet and kaoliang. All of the crops were being planted in rows about 21 inches apart. The planting furrow was made down the middle of last year's row. The corn was being spaced five grains to the hill in hills about 42 inches apart. Kaoliang and millet were being scattered broadcast in the furrow and covered with compost soil and the furrow then leveled with a wooden V-shaped implement. In the planting of corn, sometimes the corn is

alternate rows, the vacant row being left for soybeans to be planted about the first of June. Soybeans are also planted in all corn, midway between the corn hills when the corn plants are about six inches high. Photographs were taken yesterday of the corn planting near the station.

After watching the planting operations the farmer took us to his home within a compound and allowed us to go through the various buildings to see how a middle-class Manchurian farmer lives. This man with the members of four families of relatives, all living in the compound, work about ten acres.

From the farmer's home we returned to the Experiment Station where we had lunch. After lunch Dr. Watanabe took us over the station grounds. A very large space of the grounds is given over to horticultural work. Apples for the most part, and in fairly large experimental plots are being tested out. Variety tests, breeding (hybridizing) and fertilizer experiments are the principal experiments. All of the standard varieties of American apples, as well as Chosen varieties are included in the tests. Special hybridizing work is being done with the Jonathan as this is one of the good varieties in this section.

In the beginning of the apple experiments the trees did not succeed very well. Finally the native Manchurian crab-apple was tried as a grafting stock and the results were so highly successful that now all varieties are grafted on Malus baccata, var. Manchurica. The station has a large number of trees of this species which are grown merely for the seed to be used as grafting stock. Dr. Watanabe advised

Saturday, May 3, 1930. (cont.)

that large amounts of the Manchurian crabapple is imported by nurserymen in the United States.

We were taken through the cotton and wild silk laboratories and found that the station is doing very extensive work along these lines. The director seemed to be a very well informed man, has a well equipped station and an excellent corps of experts working under him.

We left Hsiungyaocheng on the 5:22 p. m. train and arrived at Dairen about 8:30 p. m.

Negative #45098.
Manchurian plow.
Typical Manchurian wooden plow used by the farmer in plowing and planting all of his crops. This farmer had just completed the planting of corn.
Hsiungyaocheng, Manchuria.

Negative #45099.
Malus sp. Apple.
View of a heavily pruned apple tree in an apple orchard of the S. M. Ry. Co. The tree is 12 years old. Hsiungyaocheng, Manchuria.

Negative #45099.

Negative #45100. Malus sp. Apple. Hsiungyaocheng, Manchuria. View showingtrees in an orchard of the Experiment Station of the S. M. Ry. The trees in the photo are 12 years old and are pruned rather heavily.

Sunday, May 4, 1930.

Dairen, Manchuria.

During the day completed the May expense account and wrote official correspondence. The letter of Mr. Peter Liu requesting information as to whether or not we would require his services was answered.

In the afternoon a survey was made of Japanese and Chinese stores for soybean products. Soybeans apparently are not used as extensively in confections as in Japan. The peanut which is grown very extensively in the Kwangtung Province seems to take the place of soybeans in candies and as a roasted confection. The adsuki, however, is used very extensively in the making of paste cakes, about the same as one sees in the confectionary stores in Japan. The adsuki products are handled entirely by Japanese shops as none were observed in any of the Chinese stores.

Monday, May 5, 1930.

Dairen, Manchuria.

In the morning went to the American Consulate to have May expense account sworn to and obtain mail. Our office room rent was paid for the month of May.

After lunch we went to the office of Mr. Satoh of the S. M. Ry. with regard to visiting some of their experiment stations. He advised that it would be best to visit the Kungchuling station first as this is the principal soybean breeding station, and soybean planting was now in progress. He thought it best to wait until we had a visit with Dr. Kanda, Director of the Kungchuling station, before making any plans for visiting other stations. Dr. Kanda would advise us as to experiment stations and experiment farms having soybean work that would be of interest to us.

We were given four soybean products from the S. M. Ry. Central Office by Mr. Satoh.

1. Soybean oil lecithin. Obtained from soybean oil by German process of extraction.

2. Soybean oil extracted with new alcohol extraction process developed by S. M. Ry. Central Laboratory.

3. Soybean flour - fat free. This flour, nearly white, is made from the cake obtained through the alcohol extraction method.

4. Soybean flour. Flour made from soybean oil cake through the German process.

In discussing our trip to north Manchuria, Mr. Satoh thought it best that we take the 9:00 a. m. express which would reach Kungchuling at 8:30 p. m. the same day.

Monday, May 5, 1930.

Salem, Massachusetts.

In the morning went to the American Consulate to have May expense account sworn to and obtain mail. Our office room rent was paid for the month of May.

After lunch we went to the office of Mr. Butch of the S. H. Ry. with regard to visiting some of their experiment stations. He advised that it would be best to visit the Kungchuling station first as this is the principal soybean breeding station, and soybean planting was now in progress. He thought it best to wait until we had a visit with Dr. Kanda, Director of the Kungchuling station, before making any plans for visiting other stations. Dr. Kanda would advise us as to experiment stations and experiment farms having soybean work that would be of interest to us.

We were given four soybean products from the S. M. Ry. Central Office by Mr. Butch.

1. Soybean oil Insoluble: Obtained from soybean oil by German process of extraction.

2. Soybean oil extracted with new alcohol extraction process developed by S. M. Ry. Central Laboratory.

3. Soybean flour - fat free. This flour, nearly white, is made from the cake obtained through the alcohol extraction method.

4. Soybean flour. Flour made from soybean oil cake through the German process.

In discussing our trip to north Manchuria, Mr. Butch thought it best that we take the 9:00 a. m. express which would reach Kungchuling at 8:30 p. m. the same day.

Tuesday, May 6, 1930.

Dairen, Manchuria.

In the morning wrote official correspondence and also sent Mr. Ryerson three packages of lespedeza seed gathered from mountain side near Dairen. The products recently received from the S. M. Ry. Central Laboratory were numbered and written up.

We went to the office of Mr. Sato, S. M. Ry., relative to our visit to the experiment stations. Mr. Satoh advised that he had wired Dr. Kanda, Director of the station, the time of our arrival and to engage rooms for us at the Japanese Inn.

The remainder of the day was spent in finishing some official correspondence and preparing for the trip north. We were given some excellent data on the agricultural conditions as we might find them going through to Kungchuling.

Wednesday, May 7, 1930.

En route to Kungchuling, Manchuria.

We left at 9:00 a. m. on the express for Kungchuling with a mild and clear day to start us. The land from outside Dairen to Hsiungyaocheng appears to be about 90% planted. The apple orchards which are quite numerous between Hsiungyaocheng and Dairen are now nearly in full bloom. After a few miles out of Hsiungyaocheng very few orchards of any kind were noted.

As we proceeded up the valley toward Mukden, the soil changed more or less to a brown sandy loam and in some sections a nearly black loam whereas in the Kungchuling section and north to Hsiungyaocheng the soil is a reddish sandy loam, quite rocky. In approaching Liaoyang famous in the fighting of the Japanese-Russian War, it became very windy and dusty and at times near the river beds it was impossible to see beyond a few feet from the car windows. Drawing near Mukden the dust storm became worse.

Very few patches of wheat were noted between Dairen and Mukden, but after leaving Mukden until dark, much more wheat was seen. Also from Mukden northward not more than 50% of the land appeared to be planted. Not much storage of soybeans was noted at the stations as we passed. At Ssu-ping-kai some beans were noted stored in Osier bins in a merchant's storage yard. Near the outskirts of the place there was a considerable area given over to stacks of soybeans covered with matting and canvas tied over the tops and sides of the stacks.

We arrived at Kungchuling at 7:55 p. m. and went at once to the Japanese Inn, Marafuku, where rooms had been reserved for us by Dr. Kanda.

Wednesday, May 7, 1930.

En route to Hungnaling, Manchuria.

We left at 9:00 a. m. on the express for Hungnaling with a mild and clear day to start us. The land from outside Dairen to Hsinkyoukeng appears to be about 30% planted. The apple orchards which are quite numerous between Heiung-yuechang and Dairen are now nearly in full bloom. After a few miles out of Hsinkyoukeng very few orchards of any kind were noted.

As we proceeded up the valley towards Mukden, the soil changed more or less to a brown sandy loam and in some sections a nearly black loam appears in the Hungnaling section and north to Hsinkyoukeng the soil is a reddish sandy loam, quite rocky. In a crossing Liaoyang famous in the fighting of the Japanese-Russian war, it became very windy and dusty and at times near the river Hsia it was impossible to see beyond a few feet from the car window. Crossing near Mukden the dust storm became worse.

Very few patches of wheat were noted between Dairen and Mukden, but after leaving Mukden small fields were about was seen. Also from Mukden northward not more than 50% of the land appeared to be planted. Not much acreage of soybeans was noted at the stations as we passed. In one-pile-hat some beans were noted stored in their pits in a merchant's storage yard. Near the outskirts of the place there was a considerable area given over to stacks of soybeans covered with matting and canvas tied over the tops and sides of the stacks.

We arrived at Hungnaling at 7:55 p. m. and went at once to the Japanese Inn, Hurafukan, where rooms had been reserved for us by Dr. Kanda.

Thursday, May 8, 1930.
Kungchuling, Manchuria.

Cloudy and mild to start the day. We went to the Kungchulingexperiment station about 9:00 a. m. where we met Dr. Kanda, the Director, who speaks very little English. He called at the Office of Forage Crops, Washington, D. C. two years ago with reference to information on the soybean industry in the United States.

Kungchuling is the center of a very extensive soybean growing section and the experiment station is doing much work in the improvement of native soybean varieties. Over five hundred varieties are under test yearly and more than two thousand varieties have been experimented with. Dr. Nakamoto is the soybean expert and has charge of soybean investigations. At present he is confined to his home after an illness.

The morning was spent with Dr. Kanda and information obtained concerning soybean culture and utilization in this section. We were taken to the grain laboratory and shown the hundreds of samples of soybeans that Dr. Nakamoto is working with. The great range in size, color and shape of the seed was very interesting.

After lunch, Mr. Ota, Agricultural Engineer of the station called at the Inn and with a Chinese assistant we visited the Taiwaho Soybean Oil Mills run by Chinese. We met Mr. Ku-Zu-Yang, manager of the mills and his assistant, Mr. Son-pu-ro. We were taken through the mills and each step of producing from delivery of the beans to the extraction of the oil was explained. The mill was operating the screw presses

and has thirty of them. Each press handling five cakes, thus pressing at one time 150 cakes. During the busy season 900 cakes are turned out daily, working twenty-four hours in four hour shifts. The season of this mill is from October until about the first of June. Panoramic and snapshots were taken of scenes within the oil mill compound. See pictures at the end of today's notes.

When we had finished inspecting the oil mills we were taken to some Chinese stores where Chinese soybean miso and Chinese soy sauce were sold. The Chinese miso is more liquid (like a thin paste) than the Japanese and not ground, but both taste very much alike. There were three grades of soy sauce, all of a sweeter flavor than the Japanese soy sauce but not quite so thick, with the exception of the 1st grade, which was thicker than is Japanese soy sauce. We found two kinds of mung bean vermicelli in the store, one rather fine and the other coarse, more like noodles. Bundles of each of these kinds were purchased for our mung bean exhibit.

After our visit to the Chinese store we went to a Chinese bean curd factory. In grinding the soaked beans for making the milk mass a stone mill was used. The process of making the bean curd is practically the same as followed in Japanese tofu or bean curd factories. The Chinese bean curd, however, appeared to be pressed more and therefore the texture more compact than Japanese bean curd.

During our trip, we were taken to the home compound of a middle class Manchurian farmer's home compound and taken through the living and other quarters to see how the farmer

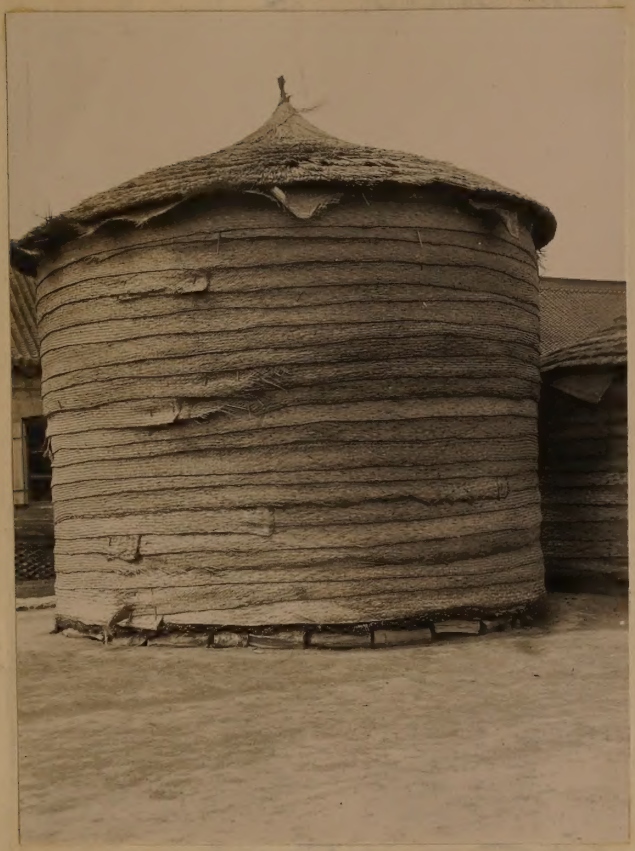
lives.

After our return to the Inn we took a short walk on the outskirts of the city to see what we could find in the way of plants. Very little growth had started as yet. We found some last year's Korean lespedeza plants so it is evident that this species grows as far north as this.

The pictures made today follow.

Negative #45101. Soja max. Soybeans. Kungchuling, Manchuria. View showing the storage of soybeans in Osier bins in the yard or compound of a Chinese Soybean Oil Mill.

Negative #45102. Soja max. Soybean. Kungchuling, Manchuria. View showing soybean oil storage tank and building where oil presses are.



Negative #45103. Soja max. Soybean. Kungchuling, Manchuria. View showing the Osier storage bin in which soybeans are stored. This bin is made of straw matting. Taken in yard of Chinese Soybean Oil Mill. This bin holds 3 carloads of beans. Each carload has 150 sacks of 160 pounds each.

Negative #45104. Soja max. Soybean. Kungchuling, Manchuria. View showing storage of soybean seed in Osier bins in the yard of a soybean oil mill.

Negative #45165. Soja meal. Kingsville, Texas.

Usual view showing the storage of a Chinese bean oil mill. On the left are shown acid tanks (wood and metal) in which soybeans are stored. To the right of the tank is an oil tank for storing soybean oil and another tank is under construction.

negative # 45106. Soja max - soybean. Hungchuling, Manchuria. View showing the yard and buildings of a Chinese Soybean Oil Mill. In the center are bins in which the beans are stored.

Neg. # 45107. Soja max. Soybean. Kiengchuling, Manchuria.
View showing storage yard and buildings of a Chinese
Oil Mill. In the center will be noted the Osier bins
in which the soybean seed is stored.

Neg. # 45108. Kungchuling, Manchuria.

View of a Manchurian farmer's home within the mud wall compound. In the center, the building is used as living quarters. In the right are cooking + dining quarters. On the right, are the mill rooms, seed and implement storage rooms.

Friday, May 9, 1930.

Kungchuling, Manchuria.

Although May is the dry month of the year, it was anything but that during the night. A very heavy rain fell during the night and was accompanied by thunder and lightning. This morning the soil is wet and very sticky and a fine rain or mist makes the start of the day not very promising.

About 9:00 a. m. we went to the Experiment Station where we had a talk with Dr. Kanda on soybeans in this section. Although there are many insects and diseases affecting the soybean in Manchuria, none of them, with the exception of the pod borer, affect the crop very seriously. The only way to combat these posts and diseases is by breeding resistant strains as it is impossible to get the Manchurian farmer to take up spraying for soybeans are grown too extensively and the farmer is too poor.

We were advised by Dr. Kanda that Mr. Nakamoto, the soybean expert, had returned to his office this morning for the first time since his illness, and wished to talk with us on soybeans. After arriving at Mr. Nakamoto's office we found that we had met him in Washington a few years ago when he came to study the soybeans in the United States. Mr. Nakamoto took us to his laboratory room and showed us samples of his selections and native varieties. He is doing much work with the "Moshito" variety, the seed of which appears identical with our U. S. Virginia variety. Complete chemical analysis has been made of all selections and varieties. On a moisture basis, the varieties ranged from about 14 to 21% fat.

Mr. Nakamoto said that he had tried out many Japanese and Korean varieties but they were not suited to the dry conditions of Manchuria. The small-seeded varieties from Siberia make good growth and are considered the best forage sorts.

We were taken to the Animal Husbandry farm where we met the Director, Mr. Hachiro Komatsu and Mr. Matokichi Osai, the forage crop specialist. It was stated that for forage and pasture work all of the important grasses and legumes from other countries have been tested but alfalfa is the only one that has succeeded. Various wild legumes and grasses from this section are being experimented with but as yet no definite results have been obtained. Mr. Osai is collecting legumes and grasses about Kungchuling for pasture and forage. He stated that there are four wild sweet clovers growing in this region. In his collecting this season he promised that he would collect extra amounts of seed of wild legumes for us.

Soybeans were being planted in a field of the station so we were taken to see the method of planting which is the same that the Dorsetts took motion pictures of at Harbin in 1926. A few snap shots were taken of the planting but under rather adverse conditions as a fine mist was falling. After the planting we visited Dr. Kanda to thank him and say good bye.

We left on the 5:35 p. m. train, arriving at Ssu-ping-kai at 6:39 p. m. and went at once to the Japanese Inn. Shortly after we had settled down in our rooms, Mr. Ikutaro Yamazaki, in charge of the local commercial office of the S. M. Ry., and assistant, Mr. Yutaka Shimizu, called to make arrange-

ments with us for tomorrow. Although there are six large Chinese soybean oil mills in this place, they have been idle for three years. In a Chinese village about five miles from here there are some of the old native wedge soybean oil mills which Mr. Yamazaki thought we might be interested in seeing. He said he would make arrangements with the Chinese govenor for some soldiers as an escort as the country about Ssu-ping-kai is rather badly infested with bandits and only the previous day a Chinese policeman had been killed by bandits a short distance from the town. Before retiring, we had a phone call from Mr. Yamazaki stating that arrangements had been made with a Chinese taxi company and for some soldiers to go with us at 9:00 o'clock tomorrow morning.

Negative #45109. Soja max. Soybeans. Kungchuling, Manchuria. Tramping ploughed ridge for planting soybeans.

Negative #45110. Soja max. Soybeans. Kungchuling, Manchuria. Planting soybeans.

Negative #45111. Soja max. Soybeans. Kungchuling, Manchuria. Scattering soil compost between last year's millet rows for fertilizing 1930 crop of soybeans.

Negative #45112. Soja max. Soybeans. Kungchuling, Manchuria. Showing Manchurian plow used in making ridges for planting soybeans and also used for coveringthe seed.

Saturday, May 10, 1930.

Ssu-ping- kai, Manchuria.

About 8:30 a. m. we went to the local office of the S. M. Ry. where we met Mr. Hideji Miura, director of the local affairs of the territory controlled by the S. M. Ry. Mr. Miura stated that soybeans are extensively planted in this region and in 1927 about 420,000 tons of beans were shipped from the station. Ssu-ping-kai is the terminal point of a Chinese railroad extending for a considerable ways in Mongolia and large amounts of Mongolian crops, especially kaoliang come to this place.

After a short visit with Mr. Miura we went to the Chinese taxi station with Mr. Yamazaki and thence to the Chinese village to see the native Chinese oil mills. When we arrived at the station, the Chinese manager told Mr. Yamazaki that they were not ready to take us and also the road to the Chinese village was bad. We would have to wait until 1:00 p. m. and then they would take us. There was more or less argument with the result that Mr. Yamazaki cancelled the trip as he suspected the Chinese were up to some trick and he did not want to chance any trouble for us.

From the taxi station we went to a Chinese soybean oil mill that has been idle from the crushing of soybeans for about three years. The owner now uses the mill rooms for cleaning seed and for hulling millet seed. He also deals extensively in soybean seed. Kaoliang and millet are also handled here. From an oil producer he has become a grain merchant. During the past season he bought 11,000 koku of

soybeans at an advanced price and held for speculation. The price has declined more or less so that he has sustained rather a heavy loss at the present price of beans. We made some pictures in the merchant's storage yard which will follow today's notes.

At 3:20 p. m. we left for Kaiyuan, where a soybean seed farm of the South Manchurian Railway is located. As we passed along we noted that the farmers were busy planting soybeans. Only occasionally did we see kaoliang or millet being planted. We also saw numerous droves of hogs along the way and several herds of cattle grazing on the nearby hills. We arrived at Kaiyuan at 5:31 p. m. and were met at the station by Mr. Sazuo Kofuku, director of the local office of the S. M. Ry and also director of the soybean seed farm located on the outskirts of Kaiyuan. After a short talk with Mr. Kofuku during which he said he would make arrangements to see the farm and soybean planting about Kaiyuan, we went to the Japanese Inn "Futaba".

Negative #45113. Soja max. Soybean. Ssu-ping-kai, Manchuria. View showing the floor or bottom of an Osier bin used in the storage of soybean seed. The floor is made of kaoliang stalks. Osier bins of soybean seed are noted in the picture. In a Chinese merchant's storage yard.

Negative #45114. Soja max. Soybean. Ssu-ping-kai, Manchuria. Mr. Suyetake holding standard Manchurian bushel measure which is 22 kilos.

Negative #45115. Panicum Italica. Millet. Ssu-ping-kai, Manchuria. View showing a partly constructed Osier bin of millet seed in the storage yard of a Chinese merchant.

Sunday, May 11, 1930.

Kaiyuan, Manchuria.

About 9:00 a. m. Mr. Kofuku called for us at the Inn and took us out to the S. M. Ry. soybean seed farm. This farm was started in 1923 by the S. M. Ry., the plan being to use it for seed increase of soybean varieties developed by the Kungchuling Experiment Station. Experiments with some of the improved Kungchuling varieties showed that better results were obtained with the native varieties grown about Kaiyuan. Moreover, the Kungchuling varieties were more seriously affected with insect injury than the Kaiyuan native varieties. These results led to breeding work with the native varieties in the Kaiyuan region as the problem seemed to be one of local adaptation. As the seed of improved varieties is increased, it is placed with the most progressive Chinese farmers in the immediate territory. The farmers in the Kaiyuan district practice a three-year rotation, namely: Soybeans, millet and kaoliang.

We were shown samples of soybean seed that the station is working with and the best of the selections and varieties were given us. The station has now been doing breeding work with soybeans for three years, but as yet has not increased any of the improved Kaiyuan native varieties sufficient for distribution to the farmers. Several farmers in the vicinity are growing one of the Kungchuling improved varieties but with rather poor results compared to the native sorts which usually consist of a mixture of varieties. The farmers found that where the native varieties suffered 10% injury from the bean pod borer, the Kungchuling suffered 20%. The new variety

had larger seed than the native varieties and weighed less per bushel which was another drawback. The seed of the improved variety, however, brought a better price as it was sold to Japan for food purposes.

After our visit over the station grounds, Mr. Kofuku took us to a Chinese farming community about two miles from the station. We found the farmers quite busy planting soybeans. As we watched it was like looking at the motion picture of soybean planting taken in 1926 by the Dorsetts at Harbin. The same methods of planting soybeans are used from here northward, we were told by Mr. Kofuku. We went to the home of the village master, Mr. Ten, and had our lunch, which we brought with us, in one of the rooms of the dwelling. We met Mr. Hoi Nien Ten, son of the village master and who is a graduate of Peking University. With our lunch we were served tea and a Chinese omelet.

On our return to the city we passed through a Chinese street and in front of many of the stores were small stacks of soybean oil cakes which were sold as cattle feed. We stopped at a Chinese merchant's storage yard and found that he had a considerable quantity of soybeans stored in Osier bins. Each bin held three carloads of beans (one car holds 150 sacks of 160 pounds each). Movie and snap shots were taken of scenes in the storage yards. Chinese merchants have lost rather heavily on last year's bean crop. The demand for beans and bean cake by European countries fell off to a marked extent the past season, with the result that beans are lower now than when the merchants purchased last fall.

We returned to the inn, obtained our luggage, and took

Neg. # 45116 Soja max. Soybeans. Kaiyuan, Manchuria

View showing Manchurian farmers planting soybeans on a farm near Kaiyuan.

the 5:35 p. m. train for Mukden where we arrived at 8:15 p. m. We stopped at a Japanese Inn but were advised that we could remain only two nights as the entire Inn had been reserved thereafter for the officers accompanying Prince Chichibu.

Negative #45117. Soja max. Soybean planting. Kaiyuan, Manchuria. Manchurian making ridges with plow. Soybeans are planted on top of ridges, covered with plow and then the ridges are rolled with a wooden roller.

Negative #45118. Soja max. Soybean. Kaiyuan, Manchuria. Making ridges for soybean planting on a farm near Kaiyuan.

Negative #45119. Soja max. Soybean. Kaiyuan, Manchuria.
Making ridges for planting soybeans on a farm near Kaiyuan.

Negative #45120. Soja max. Soybean. Kaiyuan, Manchuria.
View showing the tramping for a row on top of ridge, planting beans, and covering with plow.

Negative #45121. Soja max. Soybean. Kaiyuan, Manchuria. Planting and covering soybeans on a farm near Kaiyuan.

Negative #45122. Soja max. Soybean. Kaiyuan, Manchuria. View showing the wooden roller used in rolling down ridges or compacting soil after soybeans are planted.

Negative #45123. Soja max. Soybean. Kaiyuan, Manchuria. View showing the rolling down of top of ridges with wooden roller. Soybeans were planted on ridges and covered with plow.

Negative #45124. Soja max. Soybean. Kaiyuan, Manchuria. View showing soybean seed stored in Osier bins in the storage yard of a Chinese merchant.

Negative #45125. Soja max. Soybean. Kaiyuan, Manchuria. View of Osier bins full of soybeans. In the storage yard of a Chinese merchant.

Negative #45126. Soja max. Soybean. Kaiyuan, Manchuria. View showing the storage of soybean seed in Osier bins in a Chinese merchant's storage yard.

Negative #45127. Soja max. Soybean. Kaiyuan, Manchuria. View showing storage of soybean seed in Osier bins in storage yard of Chinese merchant. Each bin holds three carload of 150 sacks (each 160 lbs.) each.

Negative #45128. Soja max. Soybean. Kaiyuan, Manchuria.
Soybean cakes in front of a Chinese store on a street in the Chinese quarter of Kaiyuan. Mr. Suyetake, our interpreter, standing by the cakes.

Negative #45129. Pasture, sheep grazing. Chinchou, Manchuria. Flock of sheep grazing on bottom land near Chinchou. Many flocks of sheep are seen in the Kwangtung territory grazing on the hills or bottom lands.

Negative #45130. Arachis hypogaea. Peanut. Chinchou, Manchuria. Manchurian farmer making furrow for planting peanuts. On the left of the plow is a wooden attachment which covers the row to the left which was planted on the down turn. The rows are about 21" apart. Six nuts are planted to the hill which are about 15" apart in the row.

Negative #45131. Arachis hypogaea. Peanut. Chinchou, Manchuria. View showing Manchurian farmer planting peanuts. The nuts are planted in rows about 21" apart and in hills about 15" apart. 5-6 nuts are planted per hill.

Negative #45132. Arachis hypogaea. Peanut. Chinchou. View showing the planting of peanuts by Manchurian farmer near Chinchou. The planter follows immediately behind the plow. 5-6 nuts are planted to the hill which are 15" apart in rows 21" apart.

Negative #45133. Arachis hypogaea. Peanut. Chinchou. View showing oval stone rollers used in running over rows where peanuts have been planted to compact the soil.

Negative #45134. Arachis hypogaea Peanut. Chinchou, Manchuria. View showing Manchurian farmer using stone rollers (oval) to compact the soil over rows of peanuts just planted. Soil very sandy and no fertilizers used.

Mukden, Manchuria,

Monday, May 12, 1930.

Warm and clear but very windy and dusty. After breakfast we went to the Japanese Consulate to have our passports visaed as the visa obtained in Washington was only good for one year and the year was up Feb. 7, 1930. We could not obtain visas in Japanese territory so in order to go to Dairen we obtained from the Tokyo Police Department a certificate which is as much in power as a visa for entering Japanese territory, but we were advised to have our passports visaed when we were in some city where there was a Japanese consulate. As our travels would take us about Manchuria more or less and then back to our headquarters in Dairen which is in the Japanese Leased Territory. We thought it best to have our passports fixed at the first opportunity.

We found the officials very nice at the Consulate and within twenty minutes our passports were fixed for one year without reservation so that we may enter and visit Dairen, Chosen, Formosa, in fact, any part of the Japanese Empire for another year.

Following our visit to the Consulate we visited the Mukden market and found about the same kinds of vegetables as in the Dairen markets. Only one place had sprouted beans and these were mung beans. A large number of the stands had edible lily bulbs.

We spent some time looking around Chinese and Japanese stores for soybean products but found nothing but what we already have. In the window of a Chinese lunch room we saw a

soybean sprouts, the sprouts being about one-half to one inch long, and had been fried in oil. There was also a dish of mung beans which no doubt had been soaked and then fried in oil and with a few other vegetables.

We left Mukden on the 1:40 p. m. express and arrived in Dairen at 8:30 p. m. Along the way we noted the farmers busy planting soybeans, millet and kaoliang. A large number of the fields were being rolled where evidently soybeans had been planted on the ridges. Fully 95% of the land appears to be planted.

Tuesday, May 13, 1930.
Dairen, Manchuria.

The day has been quite mild and clear. In the morning developed the films that had been taken on the past week's trip. After lunch Mr. Tamakura of the S. M. Ry. Agricultural Bureau called at the office with reference to information on the various kinds of machinery used in soybean culture and harvest in the United States. We referred him to the International Harvester Company, Chicago, as this concern manufactures many implements used in the planting, cultivating, harvesting and threshing of soybeans and other grain crops.

Mr. Tamakura gave us some information on the transportation of soybeans through the port of Yingkou (Newchuang). Before the days of railroad transportation, Yingkou was the largest soybean port in the export of soybeans and soybean products. At the present time little foreign trade is handled at Yingkou but it still remains the largest Chinese junk port in Manchuria. The junks and river boats bring down large quantities of soybeans and other grains from sections along the Liao River.

We received today four samples of soybean seed from the Island Master of Saishu-to Island, Chosen. This is the island on which we were told grew very small seeded varieties of soybeans. In Tokyo, we visited Dr. Nakai, Botanist of the Imperial Botanic Gardens, and he advised us of the soybeans and stated that they were very small seeded and had been grown for many years with no export of seed. The seed received was by no means the small seeded varieties

we expected to find as we had collected very much smaller seeded varieties in our travels in Chosen during the fall of 1929.

Wednesday, May 14, 1930.

Dairen, Manchuria.

About 9:00 a. m. Mr. Go, Manager of the New York Branch of the S. M. Ry. called at the hotel. He is at present on five month's leave from the New York office and expects to spend about three weeks traveling about Manchuria. We met Mr. Go in January 1929 when he called at the Office of Forage Crops, Washington, D. C. to bring some of the South Manchurian Ry. experiment men to obtain information on the soybean industry in the United States. He was anxious to know if the Dairen officials were helping us in our investigations. We assured him that they were doing everything possible to help us.

Parcel post package No. 196 was fixed up and sent by commercial parcel post to Mr. Ryerson. A letter was also written advising him of the shipment and contents as well as enclosing the second sheets of the D. & M. numbers. The shipment contained the twelve samples of soybeans from the Kaiyuan soybean seed farm, four varieties of soybeans from the Island Master of Saitoshu Island, Chosen, and samples of soybean oil cake meal from the Mitsubishi Soybean Oil Mill, Dairen.

Thursday, May 15, 1930.
Dairen, Manchuria.

In the morning we worked on notes for the quarterly report. After lunch a picture was taken of the dwarf wisteria in the circle of the park in front of the Yamato Hotel. Numerous dwarf wisterias of this spreadingtype and of three or four different colors have been noted in various sections about Dairen and are very attractive. The remaining films of the recent trip north were developed and for the most part turned out to be very good.

A letter was received from Mr. Loyd V. Sture, Agricultural Commissioner of the U. S. Dept. of Agr. Bureau of Economics, located at Berlin, Germany. We were given information on the soybean indsutry throughout European countries. Practically all of the beans imported, of which Germany is the heaviest importer, are used in the production of oil and oil meal. The latter product is used most extensively for cattle feed although some is used as human food in the making of various kinds of bread.

Negative #45135. Wisteria. Dairen, Manchuria. Dwarf wisteria tree in the park in the center of the city. This low spreading tree when in full bloom (flowers purple) was very beautiful.

Friday, May 16, 1930.

Chinchou, Manchuria.

We left by the 9:30 a. m. bus and arrived at Chinchou about 10:30 a. m. At the Kwangtung Government Experiment Station we met Mr. Nakatomi and had quite a conference with regard to soybeans and other crops in the Leased Territory. In this region but few soybeans are planted in fields to themselves. As in the Hsiungyaocheng region the beans are planted between hills of corn when the corn is about six inches high. On the seaside to the west of Chinchou the farmers plant some soybeans alone. In the Wafangtien region in the northern part of the Leased Territory, the farmers plant soybeans quite differently from those in any other part of Manchuria. After harvest in the fall, the land is plowed and then in the spring it is plowed again. The land is marked off in rows about 21 inches apart and the beans planted. This method of planting is very similar to the one employed in Hokkaido.

This Experiment Station is doing considerable work in the improvement of the peanut. The Kwangtung territory produces about 6,000,000 Yen of peanuts yearly. Only native varieties are used and no experiments have been conducted with American varieties. The native sorts grown are a large one like our Virginia Runner or Tennessee Red and a small one like our Spanish type. The large nut is used almost entirely for food while the small one is used for the production of oil. Mr. Nakatomi is rather anxious to try some of the American varieties so we promised we would write Mr. Beattie of our office of Horticulture to send him a

our best American varieties.

After lunch, Mr. Nakatomi took us to the vegetable experimental gardens. The station is carrying on considerable work in breeding and variety testing of Japanese and Chinese radishes, melons, egg plant, tomatoes and cabbage. The Chinchou section grows many melons of high quality.

Following our visit at the station we started across country to see what we could find in the way of wild legumes and grasses. As we went along the roads of the Experiment Station we noted large patches of Astragalus scaberrimus and Lathyrus sp. This should be an excellent place to gather seed of these species. Many pods have formed on the A stragalus sp. and the seed should be mature the latter part of June. The Lathyrus sp. was in full bloom with a few pods scattered here and there.

In passing through the farming section we saw the corn up about two inches high. The fields were largely planted to corn, millet and kaoliang, although near Chinchou we saw a number of melon fields. The melon rows were about 21 inches apart and the hills in the rows about 15 inches apart. Each hill had a large number of plants, about ¾ inch high but are thinned out later.

We went through rather a sandy soil section and noticed several farmers planting some crop. It was found that they were planting peanuts in rows about 21 inches apart. Six nuts were dropped at intervals of 15 inches in the row. While the farmer was plowing a furrow for planting, a wooden attachment to the plow covered the adjacent row. Afterwards the rows were rolled with stone rollers. We returned to Dairen about 6:00 p. m.

Saturday, May 17, 1930.

Dairen, Manchuria.

The day has been rather warm and quite clear. In the morning the herbarium specimens collected recently were changed and written up. Later in the morning we went to the office of Mr. Ohara, seedsman and seed collector, with regard to securing seed of various wild legumes through his collectors in Manchuria, Mongolia, Siberia and Chosen. The following list with the request for an ounce of each was submitted and he said he would see how many his collectors could obtain for us.

Wild Legumes.

1. Aeschyonomene indica.
2. Astragalus adsurgens.
3. A. dahuricus.
4. A. melilotoides.
5. A. Chinensis.
6. A. membranacens.
7. A. complanatus.
8. A. laximanni.
9. Crotalaria sessilfolia.
10. Desmodium Odlhaami.
11. D. podocarpum.
12. Falcata japonica.
13. Hedysarum sibiricum.
14. H. esculentum.
15. Indigofera kirilovii.
16. Lespedeza cuneata.
17. Lespedeza cyrtobotrya.
18. L. medicaginoides.
19. L. tomentosa.
20. L. trichocarpa.
21. L. virgata.
22. L. floribunda.
23. Melilotus suaveolens.
24. Swainsonai salsula.
25. Thermopsis fabacea.

After lunch we went to the office of Mr. Sato of the S. M. Ry. with regard to visiting Yingkou (Newchuang) to study soybean storage and shipping. Mr. Sato thought it would

be well worth our while to visit this place and see the Chinese junk trade in soybeans. The beans come down from interior points along the Liao river and at one time Yingkou was the leading port of exporting soybeans and soybean products. At the present time it has the largest Chinese junk shipping trade in beans and other grains.

The S. M. Ry. has a branch office at Yingkou and Mr. Satoh wishes us to notify him when we visit the place so he can notify the Yingkou office and their representative will show us about.

Sunday, May 18, 1930.

Dairen, Manchuria.

Cloudy and mild in the morning. Wrote official correspondence and also wrote up quarterly report.

In the afternoon started for the mountains near Dairen to look over the flora for legumes and grasses. Shortly after starting a rain set in and were forced to return. During the rest of the day worked on soybean data in bulletins and books on Manchurian Agriculture. The history of the soybean in Manchuria, its rise from a Oriental crop to one of inter-national importance and much detailed information on the Manchurian soybean, was obtained and also the comparison of the crop with other grain crops in Manchuria.

Monday, May 19, 1930.

Dairen, Manchuria.

The day has been mild and clear. In the morning we went to the Chinese Junk Wharf which is at a considerable distance from the S. M. Ry. Wharves, to see the shipping of soybeans and soybean products by junks to Chinese ports.

Arriving at the wharf we inquired of the Wharf Master as to the shipping and found that soybean seed and soybean oil cakes were being loaded on junks. At a few places along the wharf we found coolies loading soybeans on junks and at other places loading bean cakes. Some snap shots were taken and we wished that we had the motion camera but in taking movies we had to have a member of the Fortified Zone Police along. This will be arranged as the scenes are well worth some movie film.

In the afternoon we decided to make another trip in the hill and mountain regions near Dairen to collect plants which may have come out since our last botanizing trip. In one of the gullies we found another species of Astragalus being of the same habit as A. scaberrimus but having white flowers and smooth foliage and stems. At the upper end of a gully we found several bushes or nearly small trees from 8 to 12 feet high loaded with beautiful bright yellow flowers. It is a member of the legume family and is a close member of the locust. In our travels the remainder of the day no more of these were found. This plant would make an excellent spring ornamental.

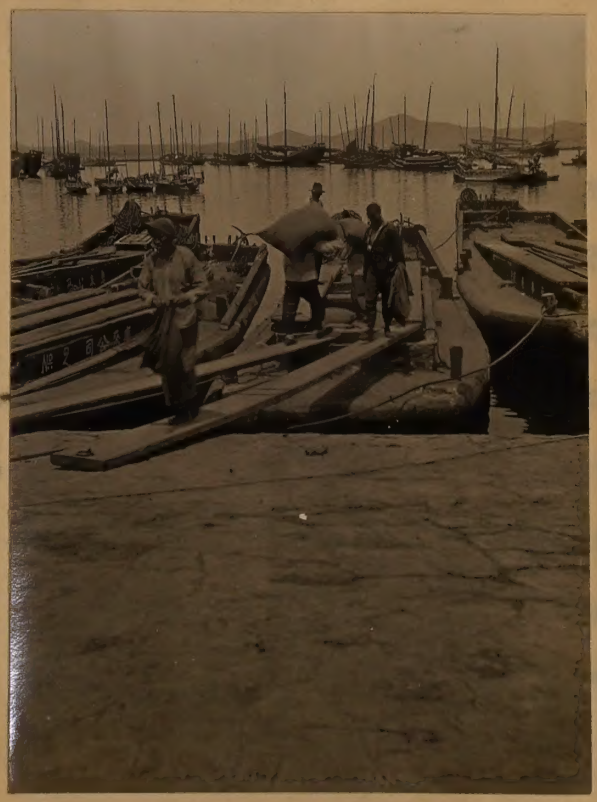
Many legumes were noticed just starting growth and it is apparent that several species of legumes can be collected

at the proper season. On the mountain top specimens were gathered of dwarf forms of Spirea and Deutzia. During the afternoons tramp several specimens of plants were collected, legumes, grass, ornamentals and other wild plants.

Negative #45136. Laburnum sp. Dairen, Manchuria.

Several of these beautiful yellow-flowered trees were found at the end and sides of a gully on the way up a mountain near Dairen. Herbarium specimens were collected.

Negative #45137. Soja max. Soybean. Dairen, Manchuria. View showing stacks of bags of soybeans on Chinese Junk Wharf. These beans are loaded on Chinese Junks and shipped to Chinese ports.



Negative #45138. Soja max. Soybean. Dairen, Manchuria. Chinese coolies loading a Chinese Junk with bags of Manchurian soybeans for shipment to Chinese ports.

Negative #45139. Soja max. Soybean oil cake. Dairen, Manchuria. Chinese coolies loading soybean oil cakes on junks. Taken at the Chinese Junk Wharf.

Negative #45140. Soja max. Soybean. Dairen, Manchuria. Chinese coolies carrying bags of Manchurian soybeans (each bag weighs 160 lbs) to junk at the Chinese Junk Wharf. These beans are shipped to Chinese ports.

Negative #45141. Soja max. Soybean. Dairen, Manchuria. Chinese loading bags of Manchurian soybeans on Chinese junks at the Chinese Junk Wharf. These beans are shipp to Chinese ports.

Negative #45142. Soja max. Soybean oil cakes. Dairen, Manchuria. Small stacks of soybean oil cakes on the Chinese Junk Wharf. These cakes are loaded on Chinese junks and shipped to southern China where they are used for fertilizer.

Tuesday, May 20, 1930.

Dairen, Manchuria.

Another very mild and clear day. In the morning we went to the office, changed the blotters on the herbarium material and wrote up the plants collected yesterday. Shortly after we went to the wharves and storage yards of the S. M. Ry. to take pictures of storage and shipping of soybean products as the season is closing and we did not know whether there would be another opportunity of taking such scenes or not.

We had some difficulty in locating the Wharf Master as we wished to make sure that everything would be o. k. in taking pictures about the yards and wharves. The Wharf Master and Wharf Marine Police assured us that we could go ahead and take any pictures we desired. We first visited the outside storage yards where large quantities of soybeans, millet, corn, peanuts, kaoliang, and buckwheat in bags were stored in large stacks under matting and canvas covers. A few pictures were taken of the outside storage of soybeans.

Some of the storage warehouses were then visited where there was mixed storage. Seed of different crops was stored in various sections of the warehouses. From the seed storage we went to the soybean oil cake storage houses and found them fairly well filled with oil cakes. The coolies were changing the stacks as in many cases the cakes had become moldy. Some pictures were taken of the storage of bean cakes in the storage houses. One of the inspectors advised us that the greatest activity in soybean products in the yards and on the wharves is in the morning.

After returning to the office the films were developed

and those worth while are included in the report.

At one of the docks we noted an American ship, the S. S. Golden Wall, from San Francisco. We learned that this boat had brought a cargo of kerosene and gasolene to Dairen and was loading 100 tons of soybean oil cake for America.

Negative #45143. Soja max. Soybean. Dairen, Manchuria. View showing the outside storage of soybeans in the storage yards of the South Manchuria Railway.

Negative #45144. Soja max. Soybean. Dairen, Manchuria. View showing the outside storage of soybeans in the storage yards of the South Manchurian Railway Yards.

Negative #45145. Soja max. Soybean. Dairen, Manchuria. View of storage of soybeans in bags of 160 pounds each, in stock in the outside storage yards of the South Manchurian Ry. Yards.

Negative #45146. Soja max. Soybean seed storage. Dairen. Bags of soybean seed stored in storage yards of S. M. Ry. The stacks are covered with matting and then with canvas. Each stack contains a carload of sacks of beans (166 lbs. each).

Negative #45147. Soja max. Soybean Oil Cakes. Dairen, Manchuria. View of soybean oil cakes at door of bean cake storage house in storage yards of S. M. Ry.

Negative #45148. Soja max. Soybean Oil cakes. Dairen, Manchuria. View showing bean cakes stacked to the doors of the storage houses which are given entirely to the storage of soybean oil cakes. South Manchurian Ry. Storage Yards.

Wednesday, May 21, 1930.

Dairen, Manchuria.

In the morning we went to the office of the Wharf Master to learn exact location of loading of soybeans and bean cake at the wharves. We were told of certain piers where boats were being loaded and also just at this time shipments were rather slow. The peak of shipments of soybeans and bean products is during December and January. He gave us a card so that in going about the yards and wharves no one would interfere with us.

We went first to the oil cake storage warehouses where we found coolies unloading bean cakes from wagons that had just come from the oil mills. At another section of the warehouses we found coolies loading freight cars with bean cakes. Time was spent until lunch in the many bean cake storage houses. Some pictures were taken of the various activities about the oil cake storage houses.

It was learned that produce stocks stored on the Dairen Wharves today totaled 245,722 tons of which 103,470 tons of soybeans were in mixed storage, 22,436 tons of soybeans other than under mixed storage, 24,691 tons of soybean oil cake and 2,876 tons of soybean oil.

After lunch at the Wharf lunch room we went about the various piers and found at one the German ship "Koenigsburg" being loaded with soybeans. The warehouses along this pier had immense quantities of bags of soybeans stored in them. Two samples of seed were obtained containing several varieties of yellow, black and brown beans. Pictures were taken of bean storage in the warehouse, loading beans on the boat and

unloading bags of beans from trucks at the Wharf warehouses.

At another pier we found a Chinese boat being loaded with soybean oil cakes. We also saw freight cars of soybean cake being unloaded at the wharf warehouse, altogether some excellent scenes were taken of shipping and storage, and the pictures are included in the day's report.

As we came out of the gate of the yard, one of the Wharf Marine Police advised us that the Wharf Master desired to get in touch with us. We went at once to his office but found that he was out. We reached him, however, by phone and learned that he was rather much exercised because he learned we did not have a Fortified Zone Police with us in taking pictures about the wharves. Mr. Suyetake stated that our permits allowed us to take still or snapshots in the fortified zone without an officer along, but that with taking movies we must have an officer along. The Fortified Zone Police office was phoned to and we were advised that Mr. Suyetake's interpretation of the permits was correct. When taking stills or snapshots we did not need to have an officer with us but that we should turn in a print of each picture for inspection. With the movie, however, we should have an officer with us and the movie film would also have to be inspected by the office.

On our way back to the Gohin Building we stopped at the office of the Fortified Zone Police to make sure that our understanding of the permits agreed with that of the police. The officer in charge stated essentially the same as had been told us over the phone. We went to the office and developed the films taken during the day.

Negative #45149. Soja max. Soybean oil cakes. Dairen, Manchuria. Coolies unloading soybean oil cakes from wagons and storing in soybean oil cake warehouse. The cake has just been brought from the oil mills.

Negative #45150. Soja max. Soybean oil cakes. Dairen, Manchuria. Coolies unloading wagons of soybean oil cakes and placing in oil cake warehouses in storage yards of the S. M. Ry. Storage Yards.

Negative #45151. Soja max. Soybean oil cakes. Dairen, Manchuria. Coolies loading freight car with soybean oil cakes from oil cake storage warehouse in storage yards of S. M. Ry.

Negative #45152. Soja max. Soybean oil cakes. Dairen. Coolies loading a freight car with soybean oil cakes from oil cake warehouse in S. M. Ry. storage yards.

Negative #45153. Soja max. Soybean oil cake. Dairen, Manchuria. Coolies loading freight cars with soybean oil cakes from oil cake storage. The cakes are taken to the wharf for export. Taken at S. M. Ry. Wharf Storage Yards.

Negative #45154. Soja max. Soybean oil cake. Dairen, Manchuria. Coolies unloading soybean oil cakes from freight car and storing in oil cake warehouse at S. M. Ry. Wharf.

Negative #45155. Soja max. Soybean oil cake. Dairen, Manchuria. Coolies unloading soybean oil cake from freight cars and storing in the bean cake storage warehouse at the S. M. Ry. Wharf.

Negative #45156. Soja max. Soybean oil cakes. Dairen, Manchuria. Coolies unloading soybean oil cakes from wagons at oil cake storage warehouse in S. M. Ry. storage yards. The wagons of oil cakes have just been brought from the oil mills.

Negative #45157. Soja max. Soybean. Dairen, Manchuria. Loading bags of soybeans on a German ship at Wharf of S. M. Ry storage yards.

Negative #45158. Soja max. Soybean. Dairen, Manchuria. Loading bags of soybeans on a German boat at S. M. Ry. Wharf.

Negative #45159. Soja max. Soybean. Dairen, Manchuria.

Loading a German ship with bags of soybeans at Wharf of S. M. Ry. storage yards.

Negative #45160. Soja max. Soybean, bean cake. Dairen, Manchuria. Stacks of soybean oil cakes stored in oil cake warehouse of S. M. Ry. storage yards.

Negative #45161. Soja max. Soybean, oil cake. Dairen, Manchuria. Stacks of soybean oil cakes stored in an oil cake storage warehouse of the S. M. Ry. storage yards.

Negative #45162. Soja max. Soybean. Dairen, Manchuria. Bags of soybeans stored in a warehouse in storage yards of the S. M. Ry.

Negative #45163. Soja max. Soybean. Dairen, Manchuria. Coolies unloading bags of soybeans from truck and storing in wharf warehouse. In storage yards of S. M. Ry.

Negative #45164. Soja max. Soybean. Dairen, Manchuria. Loading soybeans on German ship at wharf of S. M. Ry. Storage Yards.

Negative #45165. Soja max. Soybean, oil cake. Dairen, Manchuria. Loading Chinese boat with soybean oil cakes at Wharf in S. M. Ry. yards. These cakes are shipped to Chinese ports to be used as fertilizer.

Negative #45166. Soja max. Soybean, oil cakes. Dairen, Manchuria. Loading soybean oil cakes on Chinese ship at Wharf of S. M. Ry. storage yards.

Negative #45167. Soja max. Soybean, oil cakes. Dairen, Manchuria. Loading a Chinese boat with soybean oil cakes at Wharf of S. M. Ry. storage yards. The cakes are shipped to Chinese ports and used for fertilizing purposes.

Negative #45168. Soja max. Soybean, oil cake. Dairen, Manchuria. Loading Chinese ship with soybean oil cakes for shipment to Chinese ports. Loading at Wharf of S. M. Ry. yards.

Negative #45169. Soja max. Soybean, oil cakes. Dairen, Manchuria. Loading soybean oil cakes on Japanese boat at Wharf of S. M. Ry. storage yards. These cakes are shipped to Japan chiefly for fertilizing.

Thursday, May 22, 1930.

Dairen, Manchuria.

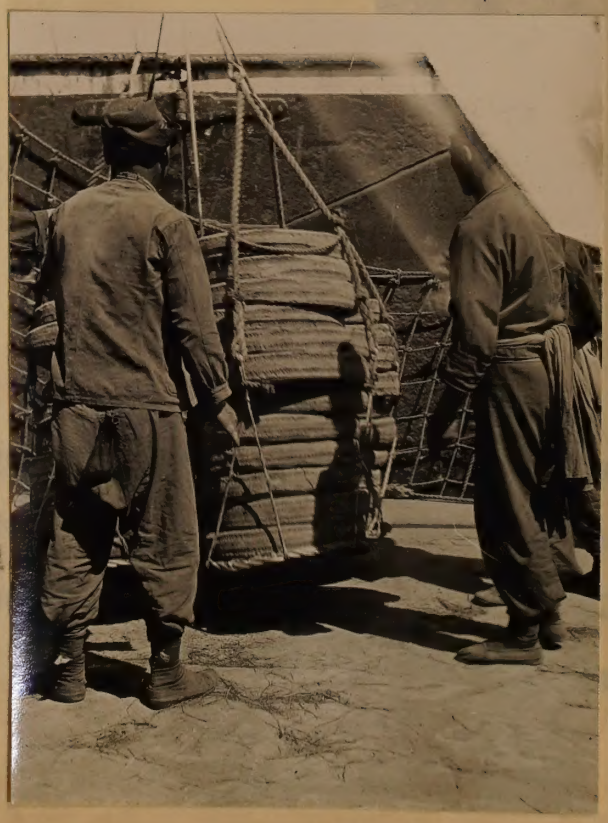
In the morning went to the office and wrote up pictures taken during the past two days and worked on herbarium material. Mr. Suyetake phoned the Fortified Zone Police Office to see if they would send an officer with us to take motion pictures about the wharves and storage yards of the S. M. Ry. As it was pay day, they said they could not send a man in the morning but if we could come about 1:30 p. m. they would be able to send a man.

After lunch we called at the Fortified Zone Office and a cadet officer went with us to the storage yards and wharves. In going about the yards and wharves we found plenty of scenes worthy of motion pictures. Movies and stills were taken of a Japanese ship being loaded with bean cakes. These cakes were being sent to Japan for use as fertilizer for rice paddies and mulberry plantations. At one of the numerous bean cake warehouses stills and movies were taken of coolies unloading bean cakes which had just been brought from the oil mills. At one wharf we found another Japanese ship being loaded with bags of beans for the Main Island to be used for soy sauce, miso and tofu. In going about the yards we saw several wagons of bags of beans on the way to the oil mills and both stills and movies were taken. We returned to the office about 5:00 p. m. and developed the motion picture spool and the stills. All turned out fairly well and are included in the day's report.

When we returned to the hotel we found a message from Mr. Nakatomi, Assistant Director of the Kwangtung Govern-

ment Experiment Station at Chinchou requesting that we come Tuesday, May 27, to take movies of soybean planting at a Chinese farm near Chinchou.

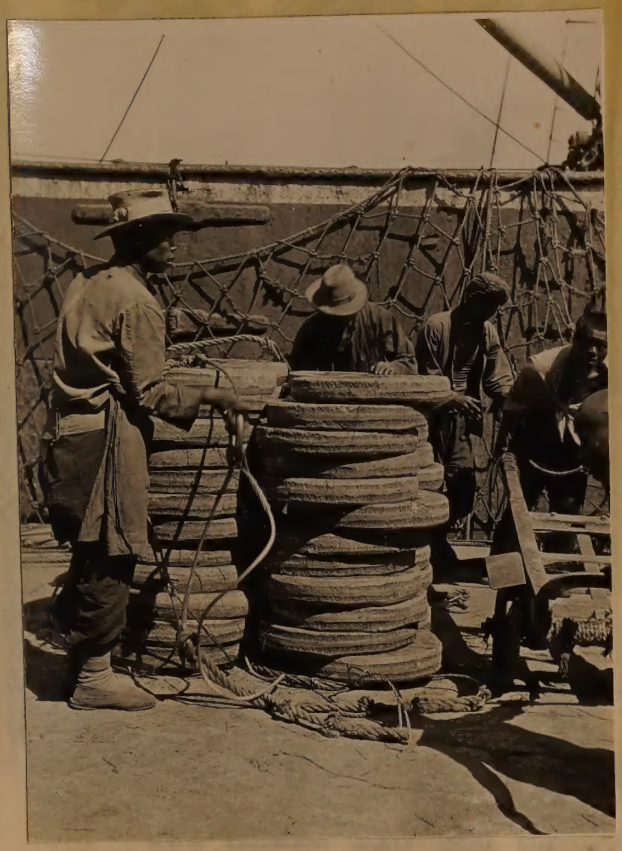
Negative #45170. Soja max. Soybean, oil cake. Dairen, Manchuria. View of a cadet officer in front of stacks of bean cakes in oil cake storage house in S. M. Ry. yards. This officer accompanied us while we were taking movies.



Negative #45171. Soja max. Soybean, oil cake. Dairen, Manchuria. Hoisting soybean cakes on board a Japanese boat for shipment to the Main Island where cake is used for fertilizer.

Negative #45172. Soja max. Soybean. Dairen, Manchuria. View of stacks of soybean oil cakes in oil cake warehouse in the S. M. Ry. storage yards.

Negative #45173. Soja max. Soybean. Dairen, Manchuria. View of wagon load of soybean oil cake on way from oil mill to oil cake storage warehouse in the S. M. Ry. Storage Yards.



Negative #45174. Soja max. Soybean. Dairen, Manchuria. View of loading soybean oil cakes on Japanese boat for shipment to Main Island where the cakes are used for fertilizing purposes.

Negative #45175. Soja max. Soybean oil cake, Dairen, Manchuria. View of soybean oil cakes in oil cake storage house in storage yards of the S. M. Ry.

Negative #45176. Soia max. Soybean. Dairen, Manchuria. View of wagon loads of bags of soybean seed being taken from storage yards of S. M. Ry. to the oil mills for crushing.

Negative #45177. Soia max. Soybean. Dairen, Manchuria. View of wagon loads of soybean seed on way to soybean oil mills from storage yards.

Negative #45178. Soia max. Soybean oil cake. Dairen, Manchuria. View of stacks of soybean oil cakes in oil cake storage warehouse in the storage yards of the S. M. Ry.

Negative #45179. Soia max. Soybean oil cake. Dairen, Manchuria. View of unloading bean cakes from wagon at wharf storehouse in S. M. Ry. yards. These cakes have been inspected and are being stacked in warehouse for export.

Friday, May 23, 1930.

Dairen, Manchuria.

The day has been quite warm and clear. In the morning received a cablegram through the American Consulate from Mr. Ryerson as follows:

W. J. Morse May 22, 1930.
c/o American Consulate,
Dairen, Manchuria.

Dorsett reported seriously ill by sister. Cable present condition stop. Take utmost care.
Ryerson.

We went to Mr. Langdon, the American Consul to find out about sending a reply cablegram to the above and he suggested that it be sent in code through the State Department to Mr. Ryerson. The following message was sent to Mr. Ryerson:

Ryerson, Agriculture, Washington, D. C.

Dorsett still in hospital, slowly recovering. Utmost care taken.
Morse.

It was suggested by Mr. Langdon that much cheaper rates through the Consulate could be obtained through code and government rates, and the message would probably be sent more promptly.

A letter was received from Dr. Pieters relative to the Potassium Chlorate experiments for winter hardiness of seed concerning which we wrote him in the winter. The data was obtained from Dr. Terao, Chief Plant Breeder of the Imperial Japanese Department of Agri. Exper. Station at Nishigahara. We are having Mr. Suyetake write Dr. Terao to see if there are any publications on the subject and if so to have some sent Dr. Pieters, otherwise to write Dr. Pieters

concerning the method. Apparently there was some misunderstanding in the translating of Japanese into English or different results are obtained with clover and alfalfa than with rice and genge clover.

We expected to visit some oil mills to take movies but late in the morning we were advised by the secretary of the Oill Mills Association that he had a special conference on for the afternoon and that arrangements would be made for tomorrow morning. We phoned the Fortified Zone Police Office and they said a man could go with us in the morning, only, as Saturday afternoon was a holiday. We made arrangements to call at the Police Office at 8:30 a. m.

About 2:00 p. m. we took a car and went down toward Hoshigaura Beach to look up legumes and grasses. On a bluff near the shore we found plants of rather an interesting Melilotus sp. This species has a prostrate habit and red stems from 18 to 24 inches long. It makes a good early spring growth, is quite leafy and does not have as pronounced taste of coumarin as does Melilotus alba. The soil is rather poor and the species may have some value for the United States. On another bluff nearby were found small patches of a Medicago sp. probably M. falcata, as the leaves are quite narrow and are smaller than M. sativa. The habit was semi-erect. Both of these species, Melilotus and Medicago are worth watching for plant specimens when in flower and for seed. A species of Trifolium, perhaps T. hyimaster, was found in scattered places and is just coming into bud. Two species of Vicia and several other legumes were noted scattered about. Near old plants, seedlings of Korean lespedeza had

Friday, May 23, 1930 (cont. 2).

started. Kudzu was noted in many gullies and had made several feet of growth. Returned to Dairen about 6:00 p. m.

Saturday, May 24, 1930.

Dairen, Manchuria.

The day has been quite warm and very clear. We went to the Office of the Fortified Zone Police about 8:30 a. m. where we met the Cadet Officer who was to go with us again in our motion picture travel.

Our first stop was at the Mitsubishi Soybean Oil Mills where Mr. Yoshida, the manager, was awaiting us. Motion pictures as well as snapshots were taken of oil cake and bean storage in stacks in the oil and bean storage yard. Pictures were also taken of the drying and sacking of cracked oil cake. The cakes had become heated from too high moisture content and had molded more or less. Such cakes were cracked up, spread out on canvas, raked over occasionally and allowed to dry out in the sun. This material is sold for fertilizing purposes. Pictures were also taken of the stacks of grass used in the oil presses in place of cloth.

Mr. Yoshida thought we might obtain some interesting soybean scenes in the storage yards of the S. M. Ry. at this time. On our way we obtained some pictures of loading wagons with soybean oil cakes at the entrance of a Chinese soybean oil mill. Further down the road we obtained another picture within a Chinese soybean oil mill storage yard. Coolies were busily engaged in loading wagons with soybean oil cakes and unloading bags of beans.

Arriving at the S. M. Ry. storage yards pictures were obtained of the loading of wagons with bean cakes to carry to the wharf warehouse for export. The oil cake warehouse was

so well lighted and large that a trial was made with the motion camera to panorama a stack of bean cakes from bottom to top. The camera was opened to a 5.6 stop and we found after developing that fairly good results had been obtained. Motion pictures were also taken of the loading of freight cars with bean cakes.

We then went to the Chinese Junk Wharf at another end of the city and found only the loading of junks with bean cakes. Pictures were taken of the carrying of the bean cakes to the junk and also of the loading of the junk (close up).

After lunch we developed the snapshots taken and also two rolls of movies which turned out very good. The scenes should be of interest to our American soybean growers, especially those in the sections where the oil and oil meal industry is being developed. We have three reels of fairly good soybean scenes which we must take to the office of Fortified Zone Police for inspection and approval.

Negative #45180. Soja max. Soybean oil cakes. Dairen, Manchuria. Soybean oil cakes loaded on a Chinese Junk at the Chinese Junk Wharf.

Negative #45181. Soja max. Soybean oil cake. Dairen, Manchuria. Soybean oil cakes stored in stacks under matting covering in the yards of the Mitsubishi Soybean Oil Mills.

Negative #45182. Sola max. Grass used in oil presses. Dairen, Manchuria. Stacks of bundles of grass used in place of cloth in the oil presses when pressing out soybean oil. This grass comes from Southern China and the South Sea Islands. In yards of Mitsubishi Soybean Oil Mills.

Negative #45183. Sola max. Soybean, oil cake meal. Dairen, Manchuria. Drying cracked up soybean oil cakes in yards of Mitsubishi Soybean Mill Co. The cakes had become moldy and have been cracked up and are drying out in sun. To be used for fertilizing purposes.

Negative #45184. Soja max. Soybean. Dairen, Manchuria. Raking over cracked up soybean oil cakes that became moldy in stacks. In yards of Mitsubishi Soybean Oil Mills.

Negative #45185. Soja max. Soybean. Dairen, Manchuria. Bags of soybeans stored in stacks in the yards of the Mitsubishi Soybean Oil Mills Co.

Negative #45186. Soja max. Soybean. Dairen, Manchuria. Loading soybean oil cake from oil cake storage to wagons which carry the cakes to the boat wharves for export.

Negative #45187. Soja max. Soybean. Dairen, Manchuria. Soybean oil cakes stored under matting in the yards of the Mitsubishi Oil Mill (Soybean).

Negative #45188. Soja max. Soybean oil cake. Dairen, Manchuria. Chinese coolies carrying soybean oil cakes to Chinese Junk at the Chinese Junk Wharves.

Sunday, May 25, 1930.

Dairen, Manchuria.

Mild and clear. In the morning went to the office and changed blotters on the herbarium material. Motion picture spools of black and white film numbers 43, 44 and 45 were written up and made ready to send to the Fortified Zone Police Office for inspection and approval. With the exception of three shots taken at Kaiyuan, these spools show views of shipping and storage of soybeans and soybean oil cake in the storage yards and wharves of the S. M. Ry. These also show the storage and shipping scenes of beans and bean cake in oil mill yards and at the Chinese Junk Wharf. Prints of all pictures taken in Dairen were arranged for sending to the Fortified Zone Police for inspection. The officer in charge advised us that we would not need to send the negative and only a print of each picture would be essential.

Some official correspondence was written and some time spent on writing up the quarterly report.

Monday, May 26, 1930.

Dairen, Manchuria.

Warm and clear. In the morning blotters were changed on herbarium material. Black and white motion picture spools 43, 44 and 45, and prints of pictures taken in Dairen, were taken to the Fortified Zone Police Office. The prints were all stamped approved but the officer desired to run the motion film through a projector at Police Headquarters in the afternoon and asked us to come and see them. We had made arrangements to visit the midway section between Port Arthur and Dairen to look up wild plants. The officer told us that at any time we wished to see any of our motion films on the screen we could take this matter up with the Dairen Police Office and they would be glad to project them. Landscape views in the Fortified Zone are certainly out of the question for while our pictures were being inspected, a Japanese had about two dozen prints for inspection, most of them were landscape scenes, and all scratched.

We left by the 1:00 p. m. bus for the first tunnel station, Kokatu, between Dairen and Port Arthur which took a little over a half hour's ride. This section is quite hilly and mountainous. On the hillsides near the tunnel there is a great abundance of a pink flowered perennial legume, probably an Astragalus sp. The plants were in full bloom and we found a few young pods. This is an excellent place to gather a large quantity of seed at the proper season, about the latter part of July.

Several legumes were found scattered along the hills and mountains, and up the gullies. There seems to be quite an

abundance of Korean lespedeza. In all, about five species of lespedeza were noted. The wild soybean was found scattered all along in waste places. Many plants of a Melilotus sp. (sweet clover) were seen and it appears different from the red stemmed species seen on the bluffs near Hoshigaura recently. Several other species of legumes were noted but were not in flower. Seed of a pink flowered Astragalus sp. (specimens gathered in April on mountain near Dairen) was found maturing and a few pods fully mature, quite a fair quantity of mature and nearly mature pods were gathered. During our afternoon's walk not a kudzu plant was seen.

Other plants noted were two species of Rubus, one with white underneath the leaves and pink flowered. This resembles very much the species seen in Hokkaido last season. One species of Vitis was noted just in bloom. Many wild plants were in bloom and herbarium specimens collected. One species of red rust was found rather abundant on a weed at several places. Specimens were gathered as it was thought they might be interesting to Miss Charles. Zoysia pungens var. Japonica grows along the entire way.

In the valleys many quite good looking farm fields were seen. The fields were planted mostly to corn with only here and there fields of millet or kaoliang. The corn rows were about 17 inches apart and the corn hills about 42 inches apart in the rows. Soybeans had been planted between the hills of corn and the seedlings were just emerging. More or less trucking is carried on.

We arrived at Dairen about 5:15 p. m. and went to the office where the herbarium material was arranged in new

papers and blotters.

Negative #45189. Chinese truck farm.

View of a Chinese truck farm about half way between Port Arthur and Dairen, Manchuria.

Tuesday, May 27, 1930.

Chinchou, Manchuria.

We left at 7:30 a. m. by bus for the Kwangtung Government Experiment Station at Chinchou where we arrived about 8:30 a. m. and found Mr. Nakatomi awaiting us. With some other station men we went to a Chinese farm about two miles from the station to see methods of soybean planting in the Chinchou section. The land in this immediate farming region near the seashore, is a sandy loam rather low in humus. This farmer was planting a piece of new land in soybeans using the "Mosbeto" variety, the seed of which is very similar to our Virginia variety and is used only for green manure purposes on new land. Furrows are made about eighteen inches apart and the seed is scattered along in the furrow rather thickly by hand. As the farmer scatters the beans ahead of him he kicks the soil over the beans with his feet. The soil is then compacted over the beans with an oval shaped stone roller. Motion and other pictures were taken of scenes in connection with this planting.

After a short visit with Mr. Nakatomi we went to the road of the wall about Chinchou where we found many alfalfa plants in bloom. The flower colors were similar to those found in the hardy variegated forms. Just how these plants came to be on the road of the wall no one seems to know. Numerous plants of sweet clover were noted but as yet no signs of bloom. There were also three or four species of lespedeza and a few grasses.

After lunch at a Chinese lunch room, we struck off from the main road and went into the farming sections of the

foothills. We found the farmers busy everywhere planting soybeans between hills of corn. The corn had been planted about the first of May in about 18 inch rows and in hills about 42 inches apart. The plants were about 5 inches high and 5-7 per hill. Men were making holes midway the corn hills while others followed dropping 6-10 beans per hill and then throwing soil over the hill with their feet. In some fields the farmers were thinning the corn plants to one plant per hill and several fields were seen which had already been thinned. The variety of soybeans used by farmers throughout this section is a yellowish green seeded sort very much like the Austin variety.

As we passed through the fields we noted many fields planted to melons, which for the most part were in rows 18 inches apart and the melon hills about the same distance apart in the rows. In a few fields the rows were about 30 inches apart.

The greater part of the section passed through during the afternoon had been planted to corn and all such fields are planted to soybeans between the corn hills. More or less millet was seen and some kaoliang fields. In passing a small Chinese village we saw noodles hanging on lines drying in the sun. We found a small noodle factory and learned that the product was made from mung beans.

We caught a bus about 5:20 p. m. and arrived at Dairen about 6:00 p. m.

Negative #45190. Panicum italicum. Millet. Chinchou, Manchuria. Chinese farmer with plow drawn by ox and mule making furrow for millet seed.

Negative #45191. Soja max. Soybean planting. Chinchou, Manchuria. Planting "Moshota" soybeans on new land for green manure. The plow makes a furrow in which the beans are scattered and the soil is thrown over the seed by the planter

Negative #45192. Soja max. Soybean, planting. Chinchou, Manchuria. Planting soybeans between hills of corn in field of Chinese farmer near Chinchou.

Negative #45193. Soja max. Soybean planting. Chinchou, Manchuria. Chinese farmer planting soybeans between hills of corn. 8-10 beans are dropped to hill. The corn is about 6" high. All the acreage of corn is planted in this way.

Negative #45194. Phaseolus aurens. Mung bean noodles. Chinchou, Manchuria. View showing mung bean noodles drying in the sun on lines and the noodle maker holding up a bundle of noodles.

Negative #45195. Phaseolus aurens . Mung bean. Near Chinchou, Manchuria. View showing mung bean noodles on lines drying in a Chinese village near Chinchou.

Negative #45196. Panicum italicum. Millet. Chinchou, Manchuria. Chinese farmer sowing millet in furrow just made by plow. The gourd-kaoliang stalk seeder is used. In field near a Chinese farming hamlet in the vicinity of Chinchou.

Negative #45197. Soja max. Soybean planting. Chinchou, Manchuria. Chinese farmers planting soybeans between hills of corn. Farm field near Chinchou.

Negative #45198. Chinese farm village. Near Chinchou, Manchuria. Chinese farm village in the foothill section near Chinchou.

Negative #45199. Panicum italicum. Millet. Chinchou, Manchuria. Chinese farmer planting millet in furrow with gourd-kaoliang stalk seeder on Chinese farm near Chinchou.

Wednesday, May 28, 1930.

Dairen, Manchuria.

The day has been rather warm and quite clear. In the morning went to the office and developed spool #46 black and white movie, of the soybean planting scenes taken in the vicinity of Chinchou yesterday, and all views seemed to have turned out very good. The snapshots also taken along with the movie scenes and other farm views were developed.

The plant specimens collected on our Monday trip on the Port Arthur road and those collected about the Chinchou section were written up and blotters changed. Material was packed and made ready for our trip to Newchwang (Yingkou) tomorrow.

Thursday, May 29, 1930.

Yingkou (Newchwang), Manchuria.

For some time we had been advised by Mr. Satoh of the S. M. Ry. that we should go to Yingkou (Newchwang) to see junk transportation of soybeans on the Liao River. There have been so many things to see on the soybean industry in a short time that we did not find time until today.

We left on the 9:00 a. m. express and arrived at Ta-Shih-Chiao at 1:08 p. m. where we changed trains. The Yingkou train left at 2:00 p. m. and we arrived at Yingkou at 2:35 p.m. Newchwang has always been a familiar name to us for from here, by Frank N. Meyer, were sent in four samples of soybeans, three of which were given varietal names by Dr. C. V. Piper as follows: S.P.I. No. 19183, Wilson; 19184, Fairchild; 19186, Morse. From 19186 the Virginia was selected and this variety is one of the most generally grown in the United States and since its selection and distribution has brought millions of dollars to American Farmers. The Wilson is extensively grown in the Middle Atlantic States and Corn Belt States for forage and the Morse is quite generally grown in Arkansas, Missouri and the Southern half of Illinois. These introductions were sent in by Meyer in 1906 and through the years have brought many, many millions of dollars to U. S. farmers through seed, forage and pasture. Little did Meyer realize the money he was pouring in the farmers' pockets through these three small samples of soybeans. We are in hopes that we will be equally as fortunate in picking some good varieties.

During our few minutes stop at Hsiungyaocheng, Mr. Hisatake of the S. M. Ry. Experiment Station at this place met us and said he phoned to Mr. Satoh at Dairen that the farmers were now planting soybeans in the corn and we should come by Friday to see this method. We told him arrangements had been made forus at Yingkou with some of the S. M. Ry. men to be with us this afternoon and Friday, but that we could come Saturday.

Upon arrival at Yingkou we were met at the station by Mr. U. Kawashima of the Foreign Service Department and Mr. Shitami, Agricultural Engineer of the S. M. Ry. Co. We were first taken to the railway storage yards which are along the banks of the Liao River. Large quantities of soybeans and bean cake were in outside storage stacks and in the warehouses along the river bank. Nearly all of the beans in storage were yellow seeded varieties used for oil and oil cake. We found some stacks of black soybeans which were being loaded on freight cars. These had been brought down the river in junks from near the Kaiyuan district and were a mixture of black seeded varieties which resemble very closely the Wilson, S.P.I. 19183, as it was first introduced. We were told that this black soybean is especially good for poor soils and is used only for green manure purposes.

Chinese coolies were busily engaged in loading freight cars with bags of beans and bean cakes. At the wharves small Chinese junks were being loaded with bean cakes. On the river, the current of which reminds one of the Mississippi, were seen junks coming and going, loaded with bags of beans and bean cakes. After taking some snapshots and movies of

the storage and loading of beans and bean cake, we went to the local office of the S. M. Ry where we met Mr. Sekimoto, the manager. Through him we learned that in the Yingkow section there is much alkalai land and the agricultural engineers of the S. M. Ry. are working on methods of reclaiming this land. Upon being asked for information on alkalai soil work in the United States, we referred him to Prof. C. F. Shaw of the University of California, who has made special investigations of alkalai soils in California and Mexico for several years.

Large quantities of soybeans, bean cake, and bean oil are brought from interior points down the Liao River to Yingkou by Chinese junks. A large percent of these products as well as other agricultural products are shipped by rail to Dairen.

The products shipped by boat go to Southern China ports and to various islands of the East Indies. Although water freight to Dairen is cheaper than rail freight, the railway is very much quicker and allows the merchant advantages of better prices for his products. River transportation of beans, in fact all agricultural products, is most active in October and part of November. The river then freezes up and no more river transportation until the middle or latter part of April when there is a heavy river freight, especially of beans and bean cake until the forepart of June.

After our visit with Mr. Sekimoto we went to a Japanese Inn. Mr. Shitami advised us just before leaving that some freighters would be loaded early in the morning with beans

and bean cake, and that it was also the best time to see the Chinese junks come to the wharves with bean cake and beans from northern points along the river. He said he would call for us about 7:00 a.m. so we could see the busy time at the wharves.

Negative #45200. Soja max. Soybean. Yingkou, Manchuria. View of stacks of bean cake and bags of beans in outside storage in yards of S. M. Ry. Co.

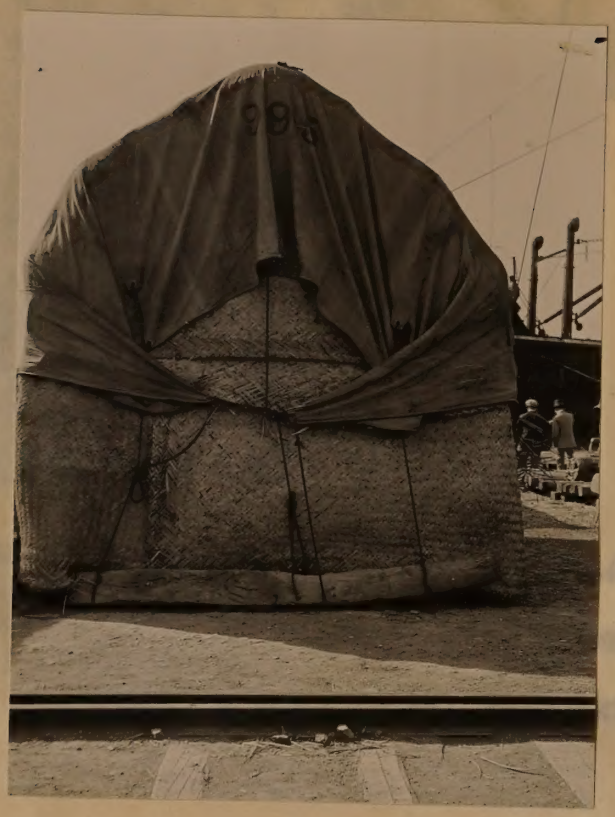
Negative #45201. Soja max. Soybean. Yingkou, Manchuria. Stacks of bean cakes and bags of beans in outside storage in yards of S. M. Ry. Co.

Negative #45202. Soja max. Soybean. Yingkou, Manchuria. Stacks of bean cakes and bags of beans on wharf of S. M. Ry. Co.

Negative #45203. Soja max. Soybean. Yingkou, Manchuria. Chinese coolies carrying bags of soybeans from stack to freight car in yards of S. M. Ry. Co.

Negative #45204. Soja max. Soybean. Yingkou, Manchuria. Soybean oil cakes in open storage in the storage yards of the South Manchurian Railway Company.

Negative #45205. Soja max. Soybean. Yingkou, Manchuria. View of stacks of soybeans in open storage in yards of S. M. Ry. Co.



Negative #45206. Soja max. Soybean. Yingkou, Manchuria. View of stack of soybeans stored under matting and canvas in the storage yards of the S. M. Ry. Co.

Negative #45207. Soja max. Soybean. Yingkou, Manchuria.
Storage of stacks of soybeans under matting and
canvas in the open storage yards of the S. M. Ry. Co.

Negative # 45208. Soja max. Soybean. Yingkou, Manchuria.
Open storage of soybean oil cake and soybeans on the wharves of the S. M. Ry. Co. along the Liao River.

Friday, May 30, 1930,

Yingkou, Manchuria.

Mr. Shitami of the local office of the S. M. Ry. called at the inn about 7:00 a. m. to take us to the wharves to see the Chinese junks from up the Liao river unloading beans and bean cake and also the loading of beans and bean cakes on large freighters. We first went to another section of the railway storage yards which we did not see yesterday and found large quantities of beans and bean cakes stored under matting and canvas. A few samples of beans were gathered from under the stacks.

At the wharves we saw coolies busily engaged in loading a large Japanese freighter with beans and bean cake for Formosa. On one side the cakes and beans were being carried on the boat while on the other side small Chinese junks were carrying loads of bean cakes to be loaded from that side. The river was quite lively with Chinese junks going up and down the river and for the most part these were loaded with bags of beans and bean cakes. It was a very pretty sight and panormans, stills and movies were taken. We found one junk which had come down the river from the Kaiyuan district loaded with black beans very similar to the Wilson, S.P.I. 19183. The beans were loose in the hold of the boat and were being sacked and carried to the open shed of the warehouse where they were being measured, sacked and stored in outside storage stacks. We followed the wharves down for a considerable distance and found all the way more or less activity in the loading and unloading of beans and bean cake.

We went back to the inn for breakfast after which Mr.

Shitami came for us and took us to the Toa Tobacco Co.'s factory which manufactures large quantities of cigarettes daily and has thirty brands on the market. The manufacture of the cigarettes is done by modern machinery while the packing in boxes is done by young Chinese girls who work with machine-like precision. These girls work by the piece and some earn as high as 70 sen per day while the coolie working about in the yards received 30 sen per day. The tobacco is obtained from the tobacco districts toward Mukden and between Mukden and Antung.

After the visit to the tobacco factory we were taken to the Chinese quarters of Yingkou and went through the market section. Nearly all of the stores had large quantities of bundles of mung bean noodles and vermicelli. Many stores or outside shops had both mung bean and soybean sprouts. The latter were quite short and apparently had been allowed to germinate for not more than two days. These are said to be used alone fried in oil or mixed with chopped vegetables and fried in oil. As we were due to leave at 3:25 p.m. we went back to the railway station and were taken to the office of the station master. We found that he had collected seventeen samples of seed for us. Namely: soybeans, mung beans, adsuki beans, buckwheat, cottonseed (native), and sesame, mostly of soybeans. The station master advised us of shipping and storage conditions and stated that for four months in the winter the river was frozen and there was very little doing in shipping. At the present time, the bean oil mills were not working but in October we might have an opportunity of seeing some of the old native wedge mills in operation.

We left Yingkou at 3:25 p. m. and arrived at Ta-Shih-

Chiao, the junction point of the main line at 4:00 p. m. We took the 4:23 p. m. express and arrived at Hsiungyao-cheng at 5:18. p. m.

Negative #45209. Soja max. Soybean. Yingkou, Manchuria. Chinese junk loaded with bean cakes, on the Liao River.

Negative #45210. Soja max. Soybean. Yingkou, Manchuria. Chinese coolies carrying bean cakes from warehouse to Japanese freighter.

Negative #45211. Soja max. Soybean. Yingkou, Manchuria. Chinese coolies unloading a Chinese junk. The black soybeans were loose and are being bagged. These beans came from the Kaiyuan district along the Liao River and are used for green manure.

Negative #45212. Soja max. Soybean, Yingkou, Manchuria. View of a Japanese freighter being loaded with bean cakes and bags of beans. On the wharf side Chinese coolies are carrying cakes and bags of beans while on the water side, Chinese junks are unloading bean cakes.

Negative #45213. Soja max. Soybean. Yingkou, Manchuria. View of a Chinese junk loaded with bags of soybeans on the Liao River.

Negative #45214. Soja max. Soybean. Yingkou, Manchuria. View of Chinese junk bringing bean cake down the Liao River from a northern point.

Negative #45215. Soja max. Soybean. Yingkou, Manchuria. View of soybeans in bags stored under matting and canvas in the storage yards of the S. M. Ry. Co.

Negative #45216. Soja max. Soybean, Yingkou, Manchuria. View of Chinese coolies carrying bean cakes from warehouse to freighter at wharf of the S. M. Ry. Co. on the Liao River.

Negative #45217. Soja max. Soybean. Yingkou, Manchuria. Chinese junk load of bags of soybeans just brought down from a northern point on the Liao River.

Negative #45218. Soja max. Soybean. Yingkou, Manchuria. View of a Chinese junk loaded with bags of beans pulling into the wharf. The beans were brought down the Liao River from a northern point.

Negative #45219. Soja max. Soybean. Hsiungyaocheng, Manchuria. Chinese farmers planting row of soybeans between corn rows. Corn was planted about May 1. (This picture should be with those taken May 31, but to get it there means the changing of too many numbers).

Negative #45220. Soja max. Soybean. Yingkou, Manchuria. View showing stacks of bean cakes and bags of beans in outside storage in the yards of the S. M. Ry. Co.

Negative #45221. Soia max. Soybean. Yingkou, Manchuria. Chinese coolies loading bean cakes and beans on freighter at the wharf of the S. M. Ry. Co.

Negative #45222. Soia max. Soybean. Yingkou, Manchuria. Chinese coolies loading bean cakes and beans on a Japanese freighter at the S. M. Ry. Wharf. The freighter will go to Formosa.

Negative #45223. Soja max. Soybean. Yingkou, Manchuria. Chinese junks bringing bean cake and beans down the Liao River from northern points.

Negative #45224. Soja max. Soybean. Yingkou, Manchuria. Chinese junk load of soybean oil cake being brought down the Liao River to the S. M. Ry. Wharf.

Negative #45225. Soja max. Soybean. Yingkou, Manchuria.
View of the open storage of beans and bean cakes on the wharves of the S.M. Ry. along the Liao River. The Japanese freighter at the wharf is being loaded with bean cakes and beans for Formosa.

Negative #45226. Soja max. Soybean. Yingkou, Manchuria.
View of stacks of soybean cake and soybeans in open storage on the wharf of the S. M. Ry. Co. along the Liao River.

Negative # 45227. Soja max. Soybean. Yingkou, Manchuria. Chinese junks on the Liao River loaded with bean cakes and bags of beans.

Negative # 45228. Soja max. Soybean. Yingkou, Manchuria.
Chinese junks loaded with bean cakes and beans
on the Liao River.

Negative # 45229. Soja max. Soybean. Yingkou, Manchuria.
Chinese junks loaded with bean cake and beans
along the Liao River.

negative #45230. Soja max. Soybean. Yingkou, Manchuria
chinese coolies loading bean cakes and bags of beans on a
Japanese freighter at the S. M. Ry. wharf along the Liao River.

Friday, May 31, 1930.

Hsiungyaocheng, Manchuria.

Warm, clear and very windy. About 7:30 a. m. Mr. Hisatake, assistant director of the station phoned that they would be planting soybeans in the corn. After breakfast we went to the experiment station where Mr. Hisatake met us and took us directly to the fields.

The first method of planting was that of planting a row of soybeans between two rows of corn. The corn had been planted the first week in May and was now 5-6 inches high and had been thinned to one plant per hill. A furrow was made between the corn rows (a row had been left for soybeans between the corn rows) and directly behind the plow came a man making a sort of path in the furrow and compacting the soil. The planter followed with a basket of beans scattering beans rather thickly in the compacted path. The beans were covered and the furrow leveled by a V-shaped wooden implement drawn by a donkey and guided by a man. The farmers vary more or less the bean rowed method as follows: 2 rows of corn and one row of beans; 2 rows of corn and two rows of beans; or alternate rows of corn and beans. In all cases the beans are now planted until the corn plants are 5-6 inches high. As a general rule, corn is planted about the first week in May and the beans about the 1st of June.

The other method of plantingis that of planting the soybeans in a hill between the hills of corn in the corn row. This method differs a little from that observed in the Chinchou district. In the latter place a small hole was made

with a hoe between the hills of corn while today the man used a long narrow bladed hoe and made rather a short furrow between the hills of corn. The planter followed and scattered beans rather thickly in the short furrows and another man came directly behind throwing the dirt over the beans with his feet. Wherever we have seen the planting of beans, it was noticed that they were planted very thickly. When scattered along in the furrow, there would be anywhere from 18-25 beans per foot, and in the hills between corn rows about 6-12 beans per hill. Mr. Hisatake advised that as a rule the farmers planted thickly because the beans had low germination. If, however, the stand was too thick in places, some of the plants were chopped out at the first cultivation. Movies, stills and a panorama were taken of the planting operations.

After lunch, we took a walking trip with a young botanist from the Station, through the foot hill sections and the farming sections. We found little plant material but noted that several wild legumes occur, especially lespodeza. We went across country to the railway and found wild legumes along the right-of-way. Some seed was gathered of an early Astragalus sp. Plant specimens were also gathered of a yellow flowered Melilotus now in full bloom. As we neared the outskirts of the city we found this clover fairly abundant in waste places. We were told by the forester of the station that it is Melilotus suaveolens. The plants grow from 24-36 inches high and are quite leafy. The seed should be mature in 3 to 4 weeks.

Upon reaching the railway station we found our luggage and a parcel containing 55 varieties of soybeans grown at

Friday, May 31, 1930 (cont. 2).

the Experiment Station.

We left Hsiungyaocheng on the 5:23 p. m. express and arrived at Dairen at 8:30 p. m.

Negative #45231. Soja max. Soybean. Hsiungyaocheng, Manchuria. Chinese farmers planting soybeans in row between rows of corn. The corn plants are about 6 inches high.

Negative #45232. Soja max. Soybean. Hsiungyaocheng, Manchuria. View of Chinese farmers planting soybeans in furrows between rows of corn.

Negative #45233. Soja max. Soybean. Hsiungyaocheng, Manchuria. View of Chinese farmers planting soybeans between hills of corn in corn rows. Corn is about 5-6 inches high.

Negative #45234. Soja max. Soybean. Hsiungyaocheng, Manchuria. View of Chinese farmers making holes between hills of corn, planting and covering soybeans.

Negative #45235. Soja max. Soybean. Hsiungyaocheng, Manchuria. View of Chinese farmers planting beans in holes between hills of corn.

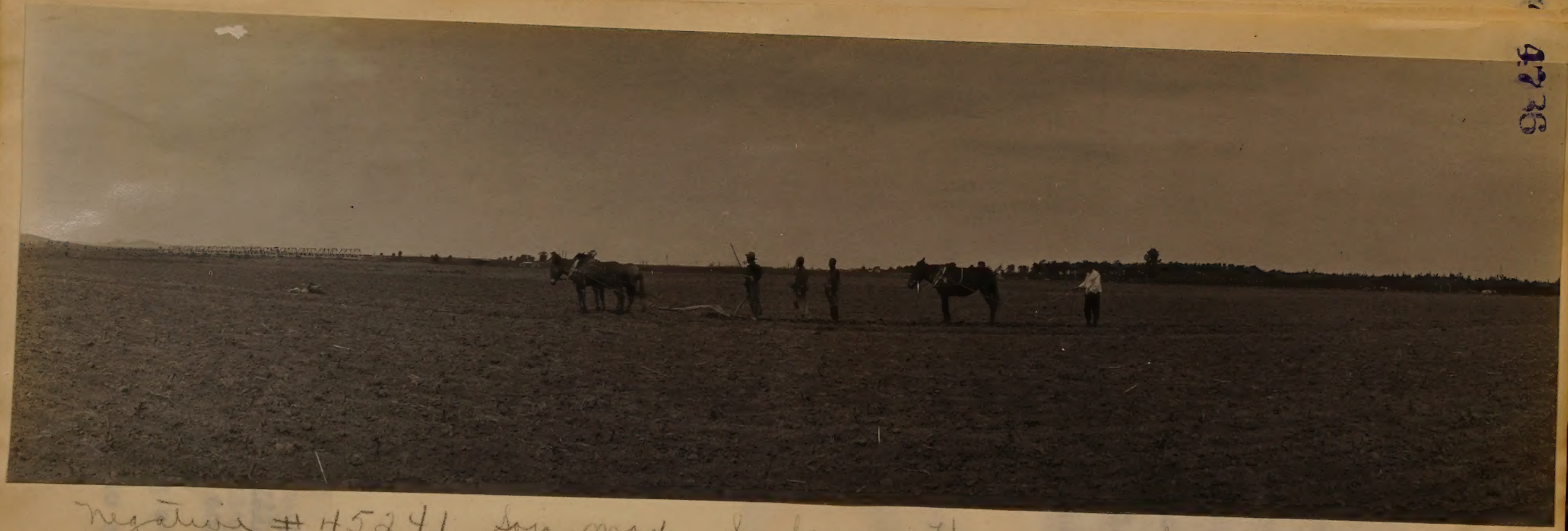
Negative #45236. Soja max. Soybean. Hsiungyaocheng, Manchuria. View of Chinese farmers planting soybeans in row between corn rows. Furrow made with plow.

Negative #45237. Soja max. Soybean. Hsiungyaocheng, Manchuria. View of digging holes between hills of corn, planting and covering soybeans.

Negative #45238. Soja max. Soybean. Hsiungyaocheng, Manchuria. Chinese farmers planting soybeans by the furrow method.

Negative #45239. Soja max. Soybean. Hsiungyaocheng, Manchuria. Chinese farmers chopping holes between hills of corn in corn rows, planting and covering beans.

Negative #45240. Medicago sativa. Alfalfa. Hsiungyaocheng, Manchuria. View showing a fine crop of alfalfa growing in a young orchard for green manure purposes. The plants are in full bloom and the variety is of a hardy variegated type.



Negative # 45241. Soja max. Soybeans. Heungyaocheng, Manchuria
View showing Chinese farmers plowing furrow, tromping furrows, planting and covering beans. The furrow is made between two rows of corn which was planted about May 1st and the corn is about 5-6 inches high.

Negative #45242. Experiment Station. Hsiungyocheng. Manchuria.
View showing experimental plots and buildings of the S. M.
Ry. Experiment Station at Hsiungyocheng.

Sunday, June 1, 1930.

Dairen, Manchuria.

The day has been quite warm and clear. In the morning worked on numbering the samples of soybean seed collected at Yingkou and Hsiungyaocheng. Changed blotters on the herbarium material at the office.

The samples of beans from the Hsiungyaocheng district represent an excellent series of varieties developed through selection by the station. Mr. Hisatake, the soybean expert, is growing about sixty varieties and gave us seed of all he had available at this time.

Monday, June 2, 1930,

Dairen, Manchuria.

The stills, movies and panorama films taken on the recent trip, of soybean transportation, storage and planting, were developed. All turned out good, especially the two spools of movies. We were rather fortunate in obtaining the scenes on the Liao River at Yingkou, as the season will soon close.

The prints of scenes taken recently about Dairen were taken to the Fortified Zone Police Office for approval and all were stamped approved. The Lieutenant in charge reminded us that care should be taken of the approved stamped prints so that if any question arose concerning the negative we would have the approved print available. We were given the three spools of movie film which we left with this office a few days ago and were told that all were o. k.

The samples of soybean products collected about Dairen were wrapped for shipment. Compared with out collection of products in Japan, we are afraid that the Manchurian collection will be rather small. Nearly all products collected thus far are made from soybean oil, such as soaps, lecithin, and hydrogenated oil for a lard substitute.

Tuesday, June 3, 1930.

Dairen, Manchuria.

The samples of seed collected on our recent trip were finished. We found the Hsiungyaocheng collection a most interesting set of varieties, especially the black and brown seeded sorts. These varieties are used only for green manure purposes and on new land. One of the brown-seeded sorts is identical with the Virginia, except the seed may be a trifle larger and this may be accounted for by climatic and soil conditions. The black seeded varieties were very similar to our Jet (17861), Peking (17852 B), Wilson (19183) and Cloud (16790) varieties.

After lunch we went to the office of Mr. Satoh, of the S. M. Ry. with reference to soybean work. We found that he is revising the English edition of the bulletin, "Soybeans in Manchuria" and that it would be available for distribution within a few weeks.

Four parcel packages consisting mostly of soybean seed and soybean products were weighed up and packed for shipping.

Wednesday, June 4, 1930.

Dairen, Manchuria.

The day has been quite warm and clear. During the day parcel packages numbers 197, 198, 199 and 200 were wrapped and sent by commercial parcel post to Mr. Ryerson. A letter was also written explaining the contents of each package and the second cards for the numbers were sent under separate cover.

The pictures taken on last week's trip were placed in jackets and written up.

Thursday, June 5, 1930.

Dairen, Manchuria.

In the morning went to the office and changed blotters on herbarium material. About 9:30 we took a street car to the southern city limit to make a plant survey over the mountain ranges south of the city.

Near the base of one of the mountains we found a considerable patch of Zoysia pungens, var. Japonica. About 75% of the spikes were past bloom, while the remainder contained hard seed.

Lespedeza was found everywhere during the day, representing at least six different species. As yet none of the species are in flower but some should be within the next ten days or two weeks. Some of these we do not recall having collected last season.

On the mountain top where the government weather bureau is located we found wild asparagus in abundance, and the seed nearly fully developed. Many plants of dwarf iris were also noted and many had small seed pods, the seed of which is colored and should be mature in a week or ten days.

As we were coming down the side of the mountain we saw two to three hundred Chinese men, women and children with buckets or cans. It was found that they were gathering pine tree worms from the young pines under the direction of the forestry department. These worms were quite thick and were doing considerable damage to the pines.

On the side of the Weather Bureau mountain we found a small patch of an Astragalus sp. which we had not seen before. The flower heads were quite similar to those of Trifolium

pannonicum.

We skirted two or three mountains and then went down through a valley where we found a number of young fruit orchards on the side hills. More or less truck farming is carried on in the valley by Chinese farmers. On our return by another mountain we saw about the same plants as noted previously.

Negative #45243. Chinese Fertilizer Cakes. Dairen, Manchuria. View showing mixing pit in which manure of various kinds is mixed with soil and water and made into cakes, which are about 18 inches in diameter and three inches thick. These are allowed to dry, as shown in the background, until firm and then are placed in ricks.

Negative #45244. Chinese Fertilizer Cakes. Dairen, Manchuria. View showing ricks of fertilizer or manure cakes near Chinese village about two miles south of Dairen. These cakes about 18 inches in diameter, are made from manure and soil. They are from 2-3 inches thick.

Negative #45245. Pinus sp. Pine. Dairen, Manchuria. View of Chinese with pails collecting pine tree worms from young pines on mountains near Dairen. The worms are doing great damage to the young planted trees. As high as fifty were counted on a tree about 3½ feet high.

Negative #45246. Pinus sp. Pine. Dairen, Manchuria. View of a Chinese woman with pail of pine tree worms which she has beaten from the young pines on the mountains near Dairen. There were several hundred Chinese men, women and children beating the worms from the young pines.

Negative #45247. Quercus sp. Oak. Dairen, Manchuria. View showing scrub or dwarf oak on mountain near Dairen. This species has been planted and is the one used in wild silk worm culture.

Friday, June 6, 1930.

Dairen, Manchuria.

Worked on May expense account and on the quarterly report. Also took care of herbarium material, changing blotters. Wrote official correspondence.

Saturday, June 7, 1930.

Dairen, Manchuria.

About 8:30 a. m. we went to the office of the Fortified Zone Police to pick up the officer whom we had arranged for yesterday to accompany us to the wharves to take some movies. We found that no officer was available in that office so they obtained a man from the Military Police Office.

We were anxious to obtain some movies of the transportation of soybean oil. Two German boats were in port to load several hundred tons of soybean oil but this would not be done until night. We found that there is a special oil wharf but that the oil is piped from the tanks in the oil storage yards and there would not be much for pictures. One of the guards advised us to go to the oil laboratory and storage yards of the S. M. Ry. At the laboratory and inspection building we found wagons being unloaded of drums of soybean oil which were brought from the various oil mills in operation about Dairen. Each drum holds 361 kin of oil.

The oil is tested and unless it reaches a certain standard is used locally in the manufacture of oil or fat products. Oil that reaches the standard or above is exported.

After taking a few pictures about the storage yards we visited the open storage yards and wharves. In various parts of the yards we found that considerable quantities of soybeans were still in outside storage. In going about the wharves and yards, we outwalked or lost our military policeman and did not see him until we had finished our pictures and were coming out of the main gate. Some movies, stills and panoramas were taken of scenes of beans and bean cake about the

wharves and storage yards. After lunch we went back to the office and developed the films.

Negative #45247 A. Prunus tomentosa. Manchurian bush cherry. In Yamato Hotel grounds at Hoshigaura, Manchuria, about 15 or 20 miles from Dairen. A nearby view of one of a number of fine clumps of this Manchurian bush cherry, used here in ornamental plantings.

Negative #45248. Soja max. Soybean. Dairen, Manchuria. View showing the loading of trucks with sacks of soybeans which have been cleaned and are to be taken to the wharves for export.

Negative #45249. Soja max. Soybean. Dairen, Manchuria. View showing storage of sacks of soybeans in open storage in the open storage yards of the South Manchurian Railway.

Negative #45250. Soja max. Soybean. Dairen, Manchuria. View showing Chinese coolie carrying soybean oil cake from freight car to oil cake stack in open storage yards of South Manchurian Railway.

Negative #45251. Soja max. Soybean. Dairen, Manchuria. View showing stacking of soybean oil cakes in open storage yards of South Manchurian Railway storage yards.

Negative #45252. Soja max. Soybean. Dairen, Manchuria. View showing the stacking of soybean oil cakes in the open storage yards of the South Manchurian Railway storage yards.

Negative #45253. Soja max. Soybean. Dairen, Manchuria. View showing the stacking of soybean oil cakes in storage yards of S. M. Ry. storage yards. The cakes have just been brought from box cars. The cakes are near the wharf and are for export.

Negative #45254. Soja max. Soybean. Dairen, Manchuria. View showing the unloading of drums of soybean oil at the oil storage yards of the South Manchurian Railway. Each drum holds 361 kin of oil

Negative #45255. Soja max. Soybean. Dairen, Manchuria. View showing wagon with three drums of soybean oil on way to oil storage yards and testing laboratory of the S. M. Ry. Each drum holds 361 kin of oil.

Negative # 45256. Soja mart. Soybean. Dairen, Manchuria.
View showing extensive open storage of sacks of soybeans under matting and canvas in the storage yards of the South Manchurian Railway.

Negative # 45257. Soja mat. Soybean. Dairen, Manchuria.
View showing stacks of soybean oil cakes in open storage in the yards of the S. M. Ry. The cakes have just been brought in box cars from the bean cake storage houses and are near the wharf where they are to be loaded on ships for export.

Negative #45257. Soja mart. Soybean. Dairen, Manchuria. View showing soybean oil storage and oil testing laboratory of the S. M. Ry. The drums of oil on the platform have just been brought from Dairen oil mills. The drums are emptied into vats in the center building and samples taken. The oil is then run into underground tanks. Each drum holds 261 kin of oil.

negative # 45259. Soja mosf. Soybean. Dairen, Manchuria.
View showing elevator and outside storage of soybeans in the storage yards of the S. M. Ry. Sacks of beans are being loaded and taken to the wharves for export. The buildings are where the soybeans are first cleaned.

Negative # 45260. Soja max. Soybean. Dairen, Manchuria.

View showing the outside storage of sacks of soybeans under matting and canvas in the storage yards of the S. M. Ry.

Sunday, June 8, 1930.

Dairen, Manchuria.

The day has been quite cool and clear. During the morning the May expense account and itinerary were finished and some official correspondence written. The pictures taken on the botanizing trip of June 5th and of scenes of soybean transportation, storage, etc., taken on a trip through the storage yards and the wharves of the South Manchurian Railway, were written up.

In the afternoon a short trip was made up some of the gullies of the mountains on the outskirts of Dairen to look over the conditions of the wild legumes. One species, probably Vicia cracca, makes a good early growth but is apparently rather late in maturity. Although several patches were found, as yet no plants were in bloom. It looks to be about the best Vicia species we have yet seen from the amount of growth and at the same time is the latest.

Monday, June 9, 1930.

Dairen and Chinchou, Manchuria.

In the morning went to American Consulate and had May expense account sworn to. After mailing we took the bus for Chinchou and began working our way toward Dairen by way of the railroad.

About one-half mile from the Chinchou station we found several patches of a Vicia sp. with a large per cent of mature seed. This species looks like a good early spring vetch and may have some value in certain sections of the United States. Several small patches of the Astragalus sp., the flower heads of which appear like those of Trifolium pannonicum, and seen on the side of the Weather Bureau mountain, were found. Considerable seed of this species can be collected here later on. This is one of the very few good wild legumes we have thus far seen on our trips.

More or less iris was noted here and there but the seed will not probably be mature before the latter part of July. It is the same species noted about the mountains near Dairen.

As we approached Ta Fang Shen we found a yellow flowered Melilotus sp. in fair abundance and is the same found near Haiungyaocheng on our recent trip. An abundance of seed can be gathered about Ta Fang Shen and should be mature the latter part of July. Plants of the Rubus sp. with white underleaf were fairly abundant along the roads.

Zoysia pungens, var. Japonica was observed in great abundance and there seems to be two varieties. In small patches, plants were seen with a white bloom. All of the Zoysia we have seen heretofore has purple bloom. A small

per cent of the plants of both varieties had hard seed and it was observed that the seed of the plants with white bloom had yellow coated seed while the plants with purple bloom had a dark purple coated seed.

After going about a half mile beyond Ta Fang Shen, we found very little of botanical interest, and as conditions did not seem to improve as we went along, we cut across country toward the Dairen-Chinchou main road. The fields were planted largely to corn, between the hills of which soybeans had been planted. However, we only saw occasional hills of beans coming up. The farmers were busy cultivating the corn with the common type Manchurian plow. In asking some of the farmers about the soybeans planted in the corn, they said that the soil was too dry to germinate the seed, and that the dry conditions at this period of the year were quite unusual. Several of them dug up the hills of beans to show us and the seed was as dry and hard as it was when planted. Our day's tramp took us about 11 miles and indicated wild legumes in this section are few and far between. We caught the bus about 5:30 p. m. and arrived in Dairen at 6:00 p. m.

Negative #45262. Soja max. Soybean. Chinchou, Manchuria. Chinese farmer cultivating corn and soybeans. Corn planted about May 1st and beans planted June 1st.

Negative #45263. Soja max. Soybean. Near Chinchou, Manchuria. View showing Chinese farmer cultivating corn and soybeans with ordinary Manchurian plow.

Negative #45264. Stone grinder. Kokaton, Manchuria.
View of a stone grinder and mill stone used commonly for grinding millet seed into flour.

Tuesday, June 10, 1930,

Dairen, Manchuria.

In the morning wrote up the plants and seed collected yesterday. Blotters were also changed on yesterday's material and that collected on recent trips. Mr. Suyetake went to the American Consulate to arrange for a six months or a year's extension of his re-entry permit to the United States. This permit had been extended in Tokyo and the time limit is July 23.

In the afternoon had a conference with Mr. Satoh regarding soybeans at the stations along the S. M. Ry. He advised that the first cultivation of soybeans had been made about the first of June. The second cultivation will be about June 20th, and the third and last the latter part of July. Mr. Satoh expects to make a trip to Kungchuling and Kaiyuan about the 18th which is about bean cultivation time, and would like to have us accompany him.

P. H. Dorsett's Notes.
Wednesday, June 11, 1930.

Dairen, Manchuria.

About 9:30 this morning went to the office. It was my first appearance since April 11th the night I was taken down with double pneumonia.

I worked for a couple of hours on my accounts which are three months behind. Dorsett's sickness has pretty well upset our work as originally planned, and to a considerable extent complicated the situation, and upset our calculation.

Mr. Morse and Mr. Suyetake left early this morning for a field exploration trip.

During Dorsett's absence on account of illness, Morse and Suyetake have carried on the field and office work.

W. J. Morse's Notes.
Wednesday, June 11, 1930,
Dairen - Kokato, Manchuria.

In the morning the blotters on the herbarium material were changed and then we left on the 10:30 a. m. bus for Port Arthur. We got off at Kokato and followed the mountains on the right of the Port Arthur road. The plants, especially on the thin soils, are showing the effects of the continued drouth. Some of the Lespedeza and Astragalus species do not seem to be much affected, even on the thin soils. On the mountain sides we found a few patches of Astragalus scaberrimus with mature pods and collected some seed.

As the mountain sides did not yield as much in way of seed or plant material, we went down through some of the dry river bottoms. We found quite a few plants of a rather late Melilotus sp. which will not be in bloom for at least two or three weeks. Several specimens were collected but for such a long tramp, our results were rather scanty. We caught the bus about 5:15 and arrived in Dairen shortly after 6:00 p. m.

P. H. Dorsett's Notes.

Thursday, June 12, 1930.

Dairen, Manchuria.

Dorsett worked at the office with correspondence and miscellaneous office work incident to getting in touch with what transpired during his absence on account of his illness.

W. J. Morse's Notes.

Thursday, June 12, 1930.

Dairen, Manchuria.

We left by the 9:30 a. m. train to make a survey of wild legumes along the railway section between Dairen and Port Arthur. We had intended to get off at Hsia Chia Ho Tzu but the country as we went along looked so dry and barren of plant material that we went on and got off at Ying Cheng Tzu at 10:15 a. m.

In our travel back several legumes were found but mostly of the same species which we have observed about Dairen, and otherplaces where we have botanized. Considerable alfalfa of the same variegated type as noted at other places was found in patches here and there. Zoysia pungens was noted in abundance all along the way. The seed is in the hard dough stage and should be mature within the next week or ten days. About midway between Hsia Chia Ho Tzu and Ying Cheng Tzu we saw large quantities of mung bean vermicelli drying on lines and appeared to be about the finest quality of this product we have yet seen.

Although we covered about 14 miles, our collection of

plants was rather small. We left the Port Arthur road and struck across the farming section for the Chinchou-Dairen Road. We found the farmers rather busy cultivating the crops. In nearly all of the corn fields where soybeans had been planted about June 1, the beans as yet had not germinated due to the dry conditions that have prevailed since planting time.

We arrived at Dairen by the Chinchou bus about 6:00 p.m.

Negative #45265. Phaseolus aureus. Mung bean. Hsiachiahotzu, Manchuria. Bundles of ~~soybean~~ vermicelli that have been drying on lines. mungbean

Negative #45266. Phaseolus aureus. Mung bean. Hsiachiahotzu, Manchuria.
View showing bundles of mung bean vermicelli that have been dried on lines in the sun and made into large bundles.

Negative #45267. Phaseolus aureus. Mung bean. Hsiachiahotzu, Manchuria. Bundles of mung bean vermicelli dried in the sun.

P. H. Dorsett's Notes.

Friday, June 13, 1930.

Dairen, Manchuria.

Worked on accounts this morningto get our balance for June 30, 1930. We find that we will have a balance of $1200.00. Dorsett, not being sure as to whether or not he is entitled to the per diem allowance while sick, is claiming the amount, and naturally is very much in hopes that it can be allowed.

As a result of today's findings we sent the following cable through the American Consulate and State Department, collect.

"Mahoney. Agriculture. Washington.

Balance June thirtieth twelve hundred plus four hundred twenty three claimed while sick, stop, if disallowed. Dorsett"

Dorsett and Morse were at the office until noon. Dorsett then returned to the hotel for the evening. The doctor calls to see him at 2:00 p. m. and after that he (Dorsett) will look over daily itinerary notes made by Morse while Dorsett was ill.

Morse and Suyetake went on a field trip for the evening.

W. J. Morse's Notes.

Friday, June 13, 1930.

Dairen, Manchuria.

In the morning, the expenses of the past year were gone over and we found that we will have a surplus left July 1st of $1215.48. A cablegram was sent Mr. Mahoney through the

American Consulateadvising him of this surplus.

As the shipping and oil season is decreasing rather rapidly, we went to the S. M. Ry. Storage Yards to obtain pictures of beans, bean cake and bean oil transportation. At one of the gates we learned that a German freighter was taking on a load of soybean oil so we went to the oil pier and arrived just as they were finishing filling the tanks.

Three sets of pipes, about 8 inches in diameter, extend from the storage oil yards of the S. M. Ry. Co., Mitsui and another company to the pier extending well out into the harbor. The oil is piped by connections at the wharf into large tanks in the holds of the vessels. No oil is shipped in drums or cans as was previously done. Pictures were taken showing the arrangement and connections of the pipes on the ship and wharf.

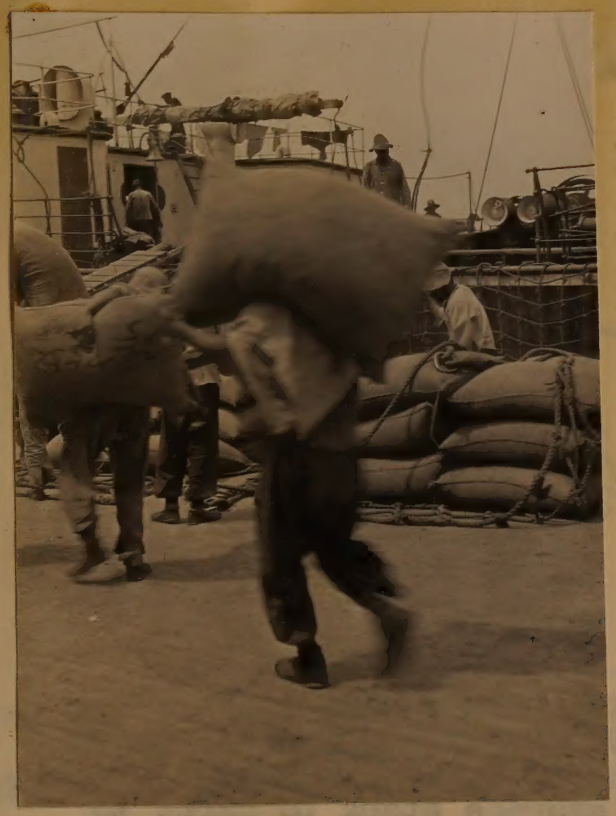
From the oil wharf we visited different parts of the storage yards and warehouses. In going about the yards we secured a few samples of beans that had come from North Manchuria. In some of the storage yards we found rather large quantities of peanuts stored and at one of the wharves a European ship was being loaded with Kwangtung peanuts.

Negative #45268. Soja max. Soybean. Dairen, Manchuria. Close up of pipe used to pipe soybean oil into oil tanks of freighters. The coolies are pouring oil back in the pipe from leakage while the oil was being piped into the tanks.

Negative #45269. Soja max. Soybean. Dairen, Manchuria. Piping soybean oil into the tanks of a German freighter at oil wharf. The oil is piped from storage tanks in the oil yards of the S. M. Ry. Co.

Negative #45270. Soia max. Soybean. Dairen, Manchuria. Drums of soybean oil on cart drawn by coolie and wagon load of drums. On the way to soybean oil storage yards.

Negative #45271. Soia max. Soybean. Dairen, Manchuria. Tank car loads of soybean oil pulling into the oil storage yards of the South Manchurian Railway Company.



Negative #45272. Soja max. Soybean. Dairen, Manchuria. Loading bags of soybeans on a German freighter at wharf of S. M. Ry. Storage Yards.

Negative #45273. Soja max. Soybean. Dairen, Manchuria. View showing the stacking of bags of soybeans in open storage in the storage yards of the South Manchurian Railway Company.

Negative #45274. Soja max. Soybean. Dairen, Manchuria. Loading bags of soybeans from storage stack to carry to wharf warehouse for export. In storage yards of S. M. Ry. Co.

Negative #45275. Soja max. Soybean. Dairen, Manchuria. Unloading flat cars of bags of soybeans in storage yards of S. M. Ry. Co. The beans have just come from Kaiyuan District, Manchuria.

Negative #45276. Soja max. Soybean. Dairen, Manchuria. View showing bags of soybeans being loaded on Japanese freighter at Dairen wharves in storage yards of S. M. Ry. Co.

Negative #45277. Soja max. Soybean. Dairen, Manchuria. Loads of soybeans in the storage yards of the South Manchurian Railway Company.

Negative #45278. Soja max. Soybean. Dairen, Manchuria. Chinese childred sweeping up soybeans from the road into pans. This road is the main road from the oil mills to the S. M. Ry. Storage Yards, and Chinese women and children are all along the road sweeping up the beans that have leaked from the bags.

Negative #45279. Soja max. Soybean. Dairen, Manchuria. Stacking bags of soybeans in open storage of S. M. Ry. Storage Yards.

Negative # 45270. Soya map. Soybean. Dairen, Manchuria.
View showing the piping of soybean oil into the tanks of a German freighter at the oil wharf of the S. M. Ry. Co.

View showing the loading of bags of soybeans on a Japanese freighter at the wharf of the S. M. Ry. Co.

negative #45272. Soya mat. Soybean. Dairen, Manchuria
View showing the unloading of carts and stacking of
bags of soybeans in the open storage yards of the S.
M. Ry. Co.

P. H. Dorsett's Notes.

Saturday, June 14, 1930.

Dairen, Manchuria.

Worked at the office in the forenoon on accounts, and at the hotel in the afternoon preparing forms for the coming fiscal year's accounts etc.

W. J. Morse's Notes.

Saturday, June 14, 1930.

Dairen, Manchuria.

In the morning we went to the office of Professor Matsushima and Mr. Satoh of the S. M. Ry. Agricultural Bureau with reference to soybean investigations at the S. M. Ry. experiment stations and also the collecting of seed of Zoysia pungens, Var. Japonica. The second cultivation of soybeans takes place about the 20th of June and Professor Matsushima thought the collecting of Zoysia seed and our study of soybean cultivation would work nicely together on a trip of about two weeks to Kungchuling and Kaiyuan, Manchuria and to Kokai, Korea, if we left about the 18th. The seed of Zoysia matures about the last week in June.

Professor Matsushima has done more or less botanical work in Manchuria and advised that the seed of Zoysia pungens does not hold its viability very long. The seed should not be held over another year but should be sown within two or three months after being harvested.

Mr. Satoh thought we might like to talk over wild legumes with one of the men of his bureau who has some

botanical collection in South Manchuria. We were taken to the office of Mr. Ando and told him we were especially interested in wild legumes. He advised that there were rather few legumes to collect (which is our opinion from numerous trips in different sections), and that this was largely due to the extreme dry conditions of South Manchuria and this same condition prevailed well into North Manchuria. With regard to the alfalfa so much of which we have seen at various places, he advised that this was probably introduced by the Russians. One wild species of Medicago sativa occurs in South Manchuria and in a section along the railroad from Dairen to Port Arthur. On a recent trip we found this alfalfa and are planning to collect seed later.

After lunch we visited the storage warehouses at the Dairen Wharves and saw large quantities of hemp seed, soybeans, adsuki beans, mung beans, peanuts, millet, kaoliang and bean cake in mixed storage. In going about these warehouses we collected several samples of soybeans, adsuki beans, and kaoliang that had come from North Manchuria.

P. H. Dorsett's Notes.

Sunday, June 15, 1930.

Dairen, Manchuria.

Dorsett remained in his room at the hotel and worked on account blanks and official and personal correspondence. About 9:00 p. m. a messenger from the U. S. American Consulate brought us a cablegram from Mr. B. Y. Morrison at Washington. A copy of the cable and my reply will be found in our report for June 16, 1930.

W. J. Morse's Notes.

Sunday, June 15, 1930.

Dairen, Manchuria.

In a letter to Dr. A. J. Pieters concerning soybean work at Arlington, he was advised of the information given yesterday by Professor Matsushima regarding the immediate planting of Zoysia seed as it did not retain its viability very long. A trip was made to Hoshigaura in the afternoon to look over some Melilotus spp. observed earlier in the season, but as yet no bloom was found. However, another species of Vicia was found growing along a sandy beach. It resembles very closely Vicia unijuga and is said to be known locally as Sand or Beach Pea.

P. H. Dorsett's Notes.

Monday, June 16, 1930,

Dairen, Manchuria.

Morse and Suyetake worked in the field. Dorsett worked at the office on official correspondence. We ordered a quantity of photographic negatives for still and motion pictures from Eastman Kodak Comapny. Also replied to the cable received last night from Mr. Morrison. A copy of my reply, as well as of his cable, will be found with the correspondence at the end of today's notes.

Morse and Dorsett talked over, to some extent, the work for the rest of the year, but did not come to any definite decision concerning the same.

Quite probably, Morse will remain here and finish up his work on the soybean in Manchuria and Dorsett, as soon as he is physically able, will proceed to Peiping and see what he can do in securing legumes in the vicinity of Peiping. Such a plan of operation is practically in accord with Mr. Ryerson's instructions in recent letters.

W. J. Morse's Notes.

Monday, June 16, 1930,
Dairen, Manchuria.

In the morning we went to the storage yards of the S. M. Ry. Co., to collect samples of beans and also to obtain pictures of soybean transportation and storage. We succeeded in collecting several samples of soybeans from open storage stacks and the bean warehouse. These samples were from shipments that had come from North and Central Manchuria.

There was much activity in bean cake shipping today as in our travels about the wharves we saw five ships taking on bean cake - Japanese, American, Chinese and English.

After lunch we visited some Chinese soybean oil mills and at all were given welcome to go through. Some difficulty was obtained in getting pictures as the coolies objected. During the day, however, several pictures were taken of storage, transportation, and oil mill scenes. A visit was made to the office of the oil wharf and we found that the English boat, "City of Corinth" would take on 650 tons of soybean oil during tomorrow morning. Arrangements were made with the Military Police for a man to go with us in the morning so we might take some movies of loading soybean oil.

Negative #45283. Soja max. Soybean. Dairen, Manchuria. Stacks of bags of soybeans in bean warehouse of storage yards of the South Manchurian Railway.

Negative #45284. Soja max. Soybean. Dairen, Manchuria. Screw oil presses in a Chinese soybean oil mill pressing out soybean oil

Negative #45285. Soja max. Soybean. Dairen, Manchuria. A bin of soybean flakes ready for steaming and flakes in steaming vat in a Chinese soybean oil mill

Negative #45286. Soja max. Soybean. Dairen, Manchuria. View showing bags of soybeans being carried by coolies at the wharf of the S. M. Ry. C. A German boat is being loaded with beans.

Negative #45287. Soja max. Soybean. Dairen, Manchuria. Unloading soybean cake from wagons in wharf warehouse and loading soybean oil cakes on Japanese freighter.

Negative #45288. Soja max. Dairen, Manchuria. View showing stacks of soybean oil cakes in open storage near wharf of S. M. Ry. Storage Yards.

Negative #45289. Soja max. Soybean. Dairen, Manchuria. View showing down an alley between stacks of bags of soybeans in a bean warehouse of the S. M. Ry. Storage Yards.

Negative #45290. Soja max. Soybean. Dairen, Manchuria. Sampling and weighing bags of soybeans in the storage yards of a Chinese soybean mill.

Negative #45291. Soja max. Soybean. Dairen, Manchuria. Chinese coolies unloading flat cars of bags of soybeans in storage yards of the S. M. Ry. Co. These beans have just come from Northern Manchuria.

Negative #45292. Soja max. Soy... Dairen, Manchuria. Sampling and weighing bags of soybeans in open storage yards of the S. M. Ry.

Negative #45293. Soja max. Soybean. Dairen, Manchuria. Chinese coolies unloading bags of soybeans from flat car in the storage yards of the S. M. Ry. Co.

Negative #45294. Soja max. Soybean. Dairen, Manchuria. Sampling and weighing bags of soybeans in open storage yards of the S. M. Ry. Co.

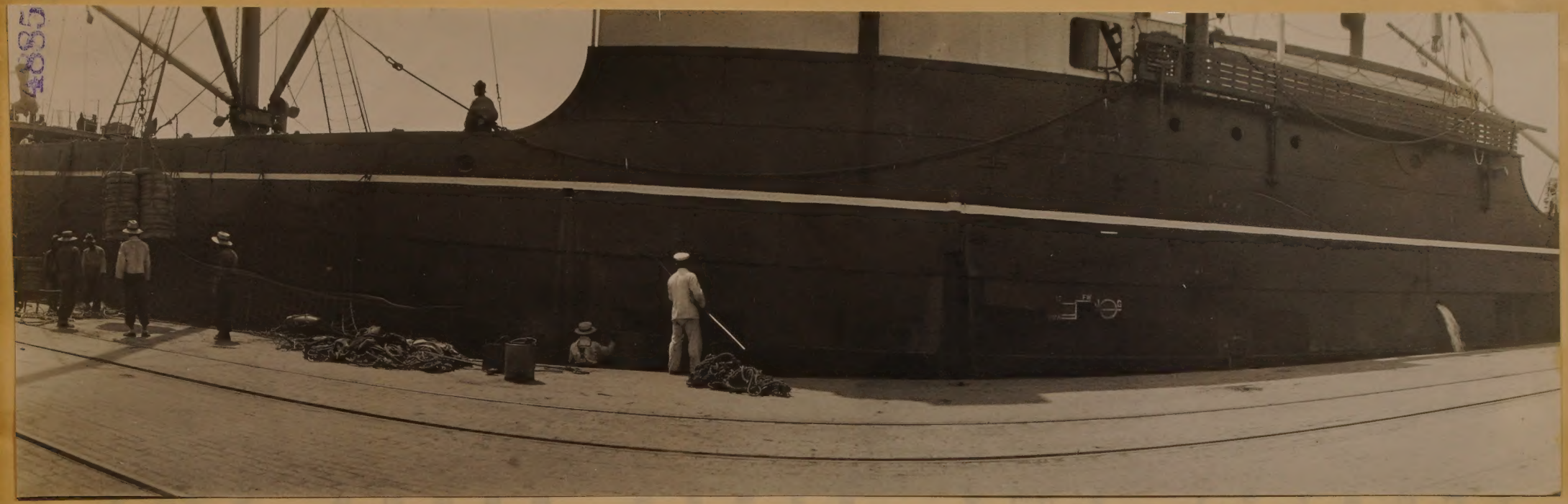
Negative #45295. Soja max. Soybean. Dairen, Manchuria. View showing Chinese coolies carrying bags of soybeans from box cars into bean storage warehouses of the S. M. Ry. The beans have just come from Northern Manchuria.

Negative #45296. Soja max. Soybean. Dairen, Manchuria. View showing inspector taking samples of soybeans from bag in the open storage yards of the S. M. Ry. Co.

Negative # 45297. ~~Soya mat~~. Soybean. Dairen, Manchuria.
Views showing the loading of Japanese freighters with bean cake at the Dairen wharves.

negative # 45297 Soja mot. Soybean. Dairen, Manchuria.
View showing bean cake storage along the Dairen Wharves
and the carrying of bean cakes on trucks to boats.

Negative # 45299. Soja max Soybean. Dairen, Manchuria.
View showing Chinese coolies carrying bags of soybeans from flat cars into bean storage warehouses of the S. M. Ry. Co.



Negative # 45300. Soja-mot. Soybean. Dairen, Manchuria.
View showing the loading of bean cakes on a Japanese freighter at the Dairen wharves.

P. H. Dorsett's Notes.

Tuesday, June 17, 1930,
Dairen, Manchuria.

Morse and Dorsett met at the hotel this morning and had a very pleasant short talk with Mr. Paul O. Nyhus, Agricultural Commissioner of the U. S. Department of Agriculture with the U. S. Consul-General at Shanghai. He left at 11:00 a. m. by steamer for Shanghai.

Morse and Suyetake went to the South Manchurian Railway Wharves to try to get motion pictures of loading soybean oil on a steamer. Dorsett went to the office and worked on official correspondence and trip report, photographs, etc. Morse was disappointed, however, in getting the pictures he wanted. The steamer was late docking and after docking the oil tanks on being tested were found to leak, and the entire day passed and no pictures were secured, which was a keen disappointment.

W. J. Morse's Notes.

Tuesday, June 17, 1930,
Dairen, Manchuria.

We left for the Dairen Wharves oil pier and on our way picked up a secret service man from the Military Police Office that we might take some movies. On arrival at the oil pier office we found that the English boat had not yet arrived though it was due at 8:00 a. m. The boat was said to be on its way from another wharf. In the meantime, we went to the inspection house of the soybean oil storage yards of the S. M. Ry. Co. nearby. This oil laboratory merely tests the oil that is brought to the storage yards from Dairen mills

and from the oil mills along the S. M. Ry lines. For export the oil has to be at a certain standard or above. This standard modified from European and American standards is as follows:

Soybean Oil Standard Test.
S. M. Ry. Oil Laboratory.

Specific gravity	0.922 - 0.928
Free fatty acids	0.7 - 0.9
Color Yellow - must be under	45.
Color Red - must be under	5.2
Moisture - must be under	0.2
Ash and dust - must be under	.4

Appearance - no fluorescence, mineral oil, etc.

The grades of oil is said to run about the same from all parts of Manchuria. The oil from the vicinity of Harbin is said to differ slightly in color and amount of dust from the oil received from other parts of Manchuria. All of the soybean oil mills close down about July 1 and do not open until about October. During the three months, July, August and September, the entire plant is overhauled and made ready for fall season.

After lunch, we found that the English boat had arrived at the oil pier. The oil tanks first had to be tested for leaks and measured. We were taken to the First Officer's room and also to see the Captain. They both stated that the shipping of soybean oil was about their most difficult work. The shipping of soybeans is an easy proposition if the holds are kept well ventilated. After waiting until 4:30 p. m. we were told that leaks had been found in the tanks and after these were fixed the tanks would have to be

Tuesday, June 17, 1930 (cont. 2).

tested again. The Captain doubted if they would be able to load the oil before morning.

P. H. Dorsett's Notes,
June 18, 1930, Wednesday.
Dairen, Manchuria.

Dorsett and Morse talked over the plans for work for the rest of the year. It was practically decided that Morse is to retain headquarters here until he completes his work with soybeans in Manchuria. Dorsett will proceed to Peiping about July 15th for the purpose of exploring for legumes in the vicinity of Peiping.

This arrangement is practically in accord with suggestions and instructions from Washington. In our opinion, the dividing of the personnel at this time is a mistake. However, be that as it may, we, in following instructions, will do the very best that we can.

W. J. Morse's Notes.
Wednesday, June 18, 1930,
Dairen, Manchruia.

During the morning soybean seed samples were written up and some correspondence taken care of. A request was made of the Office of Forage Crops Golf Green Section for publications on the making of greens. Mr. Furasawa of the Hoshigaura Golf Club and also manager of one of the large soybean oil mills in Dairen, is rather anxious to have this information as the greens at the Hoshigaura Golf Course are greens in name only. The club has not been successful in getting any grass to grow and the greens are simply compacted soil.

In the afternoon went to the Chinese Junk Wharf and found considerable activity in the shipping of soybean oil cakes. Some pictures were taken. After our return from the wharf

we developed three film packs and two panorama films of scenes taken the past ten days.

Negative #45301. Soja max. Soybean. Dairen, Manchuria. Unloading soybean oil cakes and stacking on wharf of the Chinese Junk Wharf.

Negative #45302. Soja max. Soybean. Dairen, Manchuria. Chinese coolies loading soybean oil cakes on a Chinese junk at the wharf of the Chinese Junk Wharves.

Negative # 4503. Soya mat. Soybean. Dairen, Manchuria.
View showing the unloading of bean cakes and stacks of bean cakes at the Chinese junk wharf.

Negative # 45304. Soya meal. Soybean. Dairen, Manchuria.
View showing stacks of soybean cakes at the Chinese Junk
wharf awaiting shipment to Chinese ports by Chinese Junks.

Mr. P. H. Dorsett's Notes.
Thursday, June 19, 1930.
Dairen, Manchuria.

Morse and Suyetake went into the field in search for legumes and other interesting and useful plants. Dorsett worked at the office on quarterly report, numbering picture negatives, etc. He also got off a letter to Mr. Morrison in which was outlined the plans for our work for the remainder of this year. A copy of this letter is included at the end of today's report.

The day was rather cloudy but otherwise very pleasant. There has been little rain since our arrival on April first and the country is very dry, so dry in fact that in upland sections soybeans and other grains planted some little time ago are not germinating.

W. J. Morse's Notes.

Thursday, June 19, 1930,
Dairen, Manchuria.

We received a message from Kaiyuan that due to continued dry conditions, crops were in a poor condition and that soybean cultivation would not probably be done until in July. This will delay our trip to North Korea and North Manchuria until next week. In view of this, we planned to go to the vicinity of Chinchou to collect seed of Astragalus scaberrimus and such other seed and plant material as we could find.

On our way to the bus station we stopped at a Japanese paper and printing concern and ordered 100 paper boxes, No. 5 size, for shipping seed and plant material. In 100 lots, the boxes are 25 sen each, and in 500 lots, 22 sen each.

A short visit was made to the Dairen market but about the only new thing noted was bundles of soybean plants with green pods for use as a green vegetable bean. These were noted at several stands and we learned that they had come from the Shiminoseki district (Japan).

On arriving at Chinchou, we went to the road on the wall and succeeded in collecting a small amount of pods of A. scaberrimus. The continued dry weather is showing its affect on the wild plants. Seed of a grass growing under very poor soil conditions was collected as it might have possible value under the semi-arid conditions in the States.

In the vicinity of Chinchou farm crops were making good growth and some very nice fields of corn and soybeans were noted. Pictures were taken of some cultivating scenes. After two or three miles from Chinchou, the crops were beginning to show the affect of the continued dry conditons. As yet the soybeans planted between the hills of corn had not germinated and plants of corn, millet and kaoliang were wilted and curled somewhat. Along the way, the wild plants were also more or less affected. On the road of Chinchou's wall, the alfalfa plants were noted to be seeding quite heavily and if forming the seed is not affected by the dry weather, seed should be collected of individual plants as they vary greatly in habit and plant characters. This alfalfa is a hardy variegated form and was probably introduced during the Russian occupation of this territory. About 5:30 p. m. we caught the bus and reached Dairen about 6:00 p. m.

Negative #45305. Soja max. Soybean. Chinchou, Manchuria. View showing Manchurian farmer and boy cultivating soybeans and corn in a farming section near Chinchou. For cultivating, the Manchurian plow is used but with a narrower and longer shovel.

Negative #45306. Soja max. Soybean. Chinchou, Manchruia. View of Manchurian farmer cultivating corn and soybeans.

P. H. Dorsett's Notes.

Friday, June 20, 1930,
Dairen, Manchuria.

Cloudy and more or less windy today, but otherwise quite pleasant. Dorsett got to the office about 9:00 a. m. and worked until noon on report and official correspondence.

Morse and Suyetake went to the field in search of legumes and other interesting and valuable plants.

W. J. Morse's Notes,

Friday, June 20, 1930.

Dairen, Manchuria.

We had planned to visit the farming section around Chinchou leaving on the 9:00 a. m. bus to obtain some movie pictures of the cultivation of corn and soybeans. Mr. Suyetake phoned about 8:30 a. m. that he had been quite sick during the night and would not be able to come. The quarterly report was written up and also De Vry Motion Films Nos. 41-48 inclusive.

P. H. Dorsett's Notes.

Saturday, June 21, 1930.

Dairen, Manchuria.

Worked at the office with official correspondence and numbered photographs for our quarterly report. It continues to be dry but really very pleasant.

W. J. Morse's Notes.

Saturday, June 21, 1930.

Dairen, Manchuria.

As we had not heard from Mr. Suyetake since yesterday morning we went to his boarding place but found that he had recovered and had gone to the Fortified Zone Police Office to obtain pictures taken in Dairen and sent for approval. All of the prints sent were approved as well as a motion picture spool taken of views around the Dairen Wharves. Plans were made for a trip to Kokai, Northern Korea to obtain seed of a hardy Zoysia pungens, var. Japonica, and a trip to Northern Manchuria to obtain pictures and information on soybean cultivation.

P. H. Dorsett's Notes.

Sunday, June 22, 1930.

Dairen, Manchuria.

A fine sunshiny day, quite hot in the sun but very pleasant in the shade. The dry spell continues.

After breakfast we strolled up through the principal market in the city. It is the one on the inside of a city block. The arrangement is different from any market we have ever seen. The stalls back up to stores and shops facing the streets. There is a rather narrow walk in front of the market stalls, then a glass fitted wall and then an open court. In this open court the gardners and truckers handle their products. The market is quite extensive and abounds in meat and fish stands, also vegetable pickles, fruit and vegetable stands. We would like to know the pickles so that I could list them. The dried fish products are also quite extensive and there is a great variety of fresh fish. The fruit and vegetable displays are also quite extensive.

The following is a list of the fruits and vegetables noted while strolling through the market this morning.

Fruits.

Oranges.
Grapefruit.
Strawberries, abundant.
Peaches, several varieties, but all white fleshed.
Apricots, light and deep golden in color.
Cherries, large light pink to almost red, oblong and round, deep red.
Watermelons.
Muskmelons, small light yellow in color.
Bananas.
Loquats, some quite large.
Pears, both Japanese and Chinese.

Fruit continued.

Plums, deep purple, not very large.
Apples.
Myrica rubra, strawberry fruit. This is the first time that I have seen this fruit offered for sale. The fruit, almost purple in color, looked to be about an inch or a little more in diameter.

Vegetables.

Bamboo shoots, cleaned and in water.
Punpkins, in variety, several different kind.
Garden peas, in the pod and hulled, also in the pod.
Dry and fresh onions.
Potatoes.
Burdock.
Egg plant, several varieties.
Cucumbers.
Radishes, a number of varieties, small round and oblong.
Spinach.
Lotus roots.
Japanese rubarb.
Lettuce, loose and the stem kind like D. & D. got in Peiping.
Garlic.
Carrots.
Bean sprouts, I think likely mung.
Parsley.
Cabbabe, American head.
Ginger, roots.
Wasaba, Japanese horseradish.
String beans, in abundance and of good quality.
Turnips.
Vegetable gourds.
Lily bulb scales.
Japanese water celery.
Soybeans, pods and vines.
Green peppers, poor.
Beets.
Tomatoes.
Dasheens.
Sweet potatoes.
Parsley.
Garlic flowers.

W. J. Morse's Notes.

Sunday, June 22, 1930.

Dairen, Manchuria.

In the afternoon went to Rokotan about five miles south of Dairen. This place was suggested as a good botanizing

Sunday, June 22, 1930 (cont. 2).

place by Mr. Ando of the S. M. Ry. Agricultural Office. In looking around the mountains about Rokotan, we came to the conclusion that more seed and plant material can be collected in closer proximity in the mountain region about Dairen. Not nearly so many species of plants were noted and not as many wild legumes. At the base of the mountains considerable Zoysia pungens var. Japonica was noted and a small amount of mature seed collected.

P. H. Dorsett's Notes.

Monday, June 23, 1930.

Dairen, Manchuria.

Morse and Suyetake made a trip into the field to get still and motion pictures of cultivating soybeans and other crops.

Dorsett worked at the office with official correspondence, photographs, quarterly reports, etc.

The weather continues dry and rather warm with a rather strong southeast wind which continued well into the night.

Went to the market to get the small basket of Myrica rubra fruit we saw there Sunday. After returning to the hotel yesterday it occurred to me that I should have gotten the fruit for the seed.

We only know of three plants in the States and they are at the Plant Introduction Garden at Chino, California. This is a good ornamental as well as an edible fruit-bearing plant and we regret that we were not able to get the small basket of fruit.

We will try and watch the market to see if we cannot find another lot of fruit. If so, we will grab it for the seed.

W. J. Morse's Notes.

Monday, June 23, 1930.

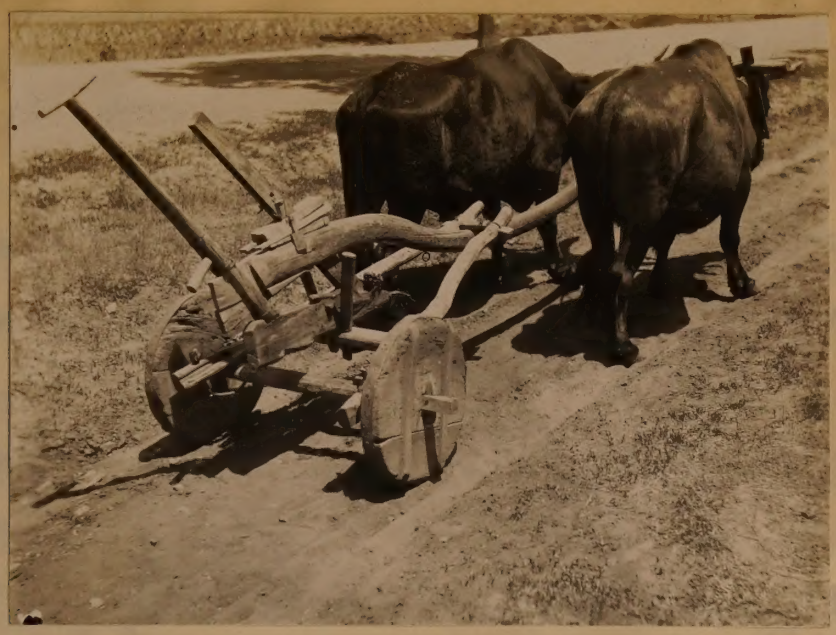
Chinchou, Manchuria.

A visit was made in the farming section about Chinchou to obtain movies of the cultivation of corn and soybeans. For about three miles in the vicinity of Chinchou crops are

looking excellent but from there to Dairen the crops are showing the effects of the continued dry weather. In this section mixed crop planting is quite generally practiced. Soybeans, cowpeas, and adsuki beans being planted in the same rows with corn or sorghum. We succeeded in getting pictures of the cultivation of soybeans and corn. The second cultivation of the field crops is nearly through in this region.

On our return we found some farmers harvesting barley. The plants were pulled, the dirt knocked off the roots by striking the plants against the foot. The plants were then tied in small bundles.

In our walks about the farming section, considerable Zoysia pungens was noted and we succeeded in collecting a mature seed.



Negative #45307. Manchurian plow. Chinchou, Manchuria. View of Chinese or Manchurian plow (Ho an li) used in cultivating corn and soybeans. The plow is on a 2-wheeled cart used to carry it from place to place.

Negative #45308. Hordeum vulgare. Barley. Chinchou, Manchuria. Manchurian farmer Harvesting barley by pulling the plants. The plants are tied in small bundles. In a farming section about two miles from Chinchou.

Negative #45309. Hordeum vulgare. Barley. Chinchou, Manchuria. Manchurian farmer harvesting barley by pulling the plants. View shows the knocking of the soil from the roots by striking the plants against the foot.

P. H. Dorsett's Notes.

June 24, 1930, Dairen, Manchuria.

Morse and Suyetake left this morning for the north to visit some of the experiment stations of the South Manchurian Railwy.

When this has been accomplished they will cross over into Chosen and make their way to Kokai to try and find an area of Zoysia pungens (more likely Zoysia Japonica for we were advised by Dr. Nakai of the Botanical Garden in Tokyo, that Zoysia pungens does not occur that far north, in fact, is not hardy as far north as Tokyo). Dr. Ralph G. Mills told Dr. A. J. Pieters that he saw this grass there while travelling in that region a few years ago. There has been considerable correspondence concerning this grass. In fact we have been advised that both Dr. Pieters and Mr. Ryerson were very much disappointed that Dorsett and Morse did not visit that region and get seed and plants of this grass while they were in Chosen last year.

Mr. Morse and Suyetake expect to get seed and also plants of this grass on this trip.

Dorsett worked at the office with official correspondence and in getting photographs ready for the quarterly reports and for our photo album.

Rained some last night; cloudy and cool today.

W. J. Morse's Notes.

June 24, 1930, En route to Kokai, Korea.

In going to the 9:00 a. m. express for Mukden, we had

rather a novel experience. A porter took our baggage and went to what looked like a checking room. We said we did not want our baggage checked but the officials on the other side of the table held on and we finally found that before we could board the train our baggage had to be inspected by the Chinese Customs. We have left Dairen on three previous trips but never had our baggage inspected by Custom officers. It happened in the earlier instances that we carried our baggage on the train ourselves.

We left on the 9:00 a. m. express and arrived at Su Chia Tun at 3:30 p. m. This is the junction point where passengers for Antung change trains. Until near the vicinity of Su Chia Tun, the crops looked rather poorly, showing the need of rain. Around the junction point, however, the crops were much better. We left Su Chia Tun on the Mukden express at 3:49 p. m. for Antung. Evidences of a good rain were seen as we went eastward. The crops were about the best we have seen. We began to see more soybeans planted along according to the North Manchuria method.

About 5:00 p. m. we passed through rather a mountainous country and numerous rice paddies were noted in the narrow valleys. As we drew near Antung the country became more mountainous. An abundance of the wild Korean lily (l. Koreana) was noted along the hillsides. Some kudzu was noted here and there but never in great abundance.

We arrived at Antung on the Yalu River at 9:00 p. m. and went at once to the Anto Hotel. This inn or hotel has a few foreign rooms at 3 and 4 Yen each.

P. H. Dorsett's Notes.

Wednesday, June 25, 1930,

Dairen, Manchuria.

Simi-cloudy and rather cool and cloudy today. Early in the morning we looked up the Kusu Typewriter Co., at 127 Yamagata Dori, for the purpose of getting our Corona portable typewriter repaired. We had a little difficulty in making them understand. They promised to send a man to the office to look it over.

We got a price of Yen 135. on a new machine. Tried to find out if they would make us an allowance for the old machine in case we purchase a new one, but did not get anything satisfactory along this line. Not speaking the language and not having an interpreter one cannot do much in a matter of this kind.

We then went to the office where we worked on official correspondence until noon.

W. J. Morse's Notes.

Wednesday, June 25, 1930,

En route to Kokai, Korea.

We went to the railway station about 7:00 a.m. as our baggage had to be passed by the Japanese Customs. Our mission to Korea was explained to the officer and our suitcases and camera cases were opened, merely looked at, and then marked o. k.

We left Antung at 7:50 a. m. and after crossing the Yalu River arrived at Shingishu on the opposite side of the river from Antung. Here we changed time and set our watches

ahead one hour. Upon leaving Shingishu we entered rather an extensive rice country. Soybeans were noted to a very considerable extent but all were planted with corn as is done in Southern Manchuria. Some fields of millet has hills of soybeans planted along side of the rows.

We arrived at Shin-Anshu, Korea at 12:35 p. m. and left on the 12:40 bus for Kokai and "Zoysia". Throughout the afternoon we passed through a very mountainous country and over some rather rough mountainous roads. Soybeans were everywhere in evidence and seemed to be planted with every sort of crop. Even fields of soybeans and cucumbers planted together were noted. A few plants of Red Clover were noted here and there along the roadside. Korean farmers, both men and women, were busy cultivating and hoeing in the fields. In hoeing the Koreans use rather a short handled and long bladed hoe.

We arrived at Kisen, Korea at 6:10 p. m. and went to a Japanese Inn, as this was as far as the bus went for the day. After engaging rooms we crossed the river at the edge of town and found large patches of Zoysia pungens along the river bank. The seed was just beginning to ripen so we gathered a good sample as well as plant specimens for herbarium material.

P. H. Dorsett's Notes.

Thursday, June 26, 1930.

Dairen, Manchuria.

Yesterday afternoon between 3 and 4 o'clock we received a Radiogram from Mr. B. Y. Morrison. It was sent by Navy Radio to the American Legation at Peiping and by them mailed to us here. The radiogram reached us on the 5th day after its receipt in Peiping. It was quite badly garbled and not clearly understandable.

The radiogram as received and our reply are included in a copy of our letter to Mr. Morrison with notes and comments as included with today's notes.

This has been another pleasant day, however, the excessive dry spell continues. Worked on official correspondence and on numbering and trimming photographic prints for our quarterly report and photo albums.

W. J. Morse's Notes.

Thursday, June 26, 1930.

En route to Kokai, Korea.

Left Kisen by bus at 9:00 a. m. The morning was passes through a very mountainous country and over some mighty rough rocky mountain roads. In the valleys paddy rice was grown to a very considerable extent. Corn and soybeans, kaoliang, millet and soybean fields were noted along the hillsides and in the valleys. White potatoes were also noticed on nearly every farm. Korean lilies were in great abundance along the hillsides and roadsides.

We arrived at Zensen about 1:50 p. m. where we had one-half hour for lunch. At 2:20 p. m. we left Zensen and again went through a very mountainous country with about the same sort of crops as we had seen during the morning's journey. We arrived at Kokai, the land of Zoysia, at 3:30 p. m. and we found our two-days over the rocky mountain roads left us in rather a sore condition.

Before supper we went to the Seinoko River at the edge of town and took the ferry across. We found the river bank with the Zoysia concerning which Dr. Mills had told Dr. Pieters of. There was an abundance of the grass and just beginning to mature. There were two or three oxen and one or two horses pasturing thereabouts but there was nothing special to indicate whether the grass would stand much hard usage or not. We made sort of a survey up and down the river bank for quite a distance and found the Zoysia all about the same. It makes an excellent sod and may have value for the utilization which Dr. Pieters desires it for. While looking over the Zoysia we found quite a large patch of red clover (Trifolium pratense) and white clover (Trifolium repens) all along the bank. Seed was gathered of both species as coming from this far north and at a high altitude, Dr. Pieters might find both clovers, especially the red one, of interest in his clover breeding work.

Negative #45310. General view. Kokai, Heian Hokudo Prefecture, Korea. View from ferry boat on the Seinoko River looking toward the ferry landing at Kokai.

Negative #45311. General view. Kokai, Heian Hokudo Prefecture, Korea. View looking up the Seinoko River and showing mountain region.

Ref on P. 5163

Negative #45312. Zoysia pungens var. Japonica. Kokai, Heian Hokudo Prefecture, Korea. Mr. Suyetake picking seed of Zoysia sp. on bank of Seinoko River opposite Kokai. This is the place referred to by Dr. Mills in his talk to Dr. Pieters of Forage Crops. View shows thickness of sod.

Ref on P 5165

Negative #45313. Zoysia pungens, var. Japonica. Kokai, Korea. View showing Zoysia sod on river bank opposite Kokai.

P. H. Dorsett's Notes.

Friday, June 27, 1930.

Dairen, Manchuria.

Semi-cloudy and rather muggy in the early morning, but later there was a good breeze. The dry weather continues.

Worked at the office with official correspondence and also continued the numbering and trimming of photographs for our albums and quarterly report.

W. J. Morse's Notes.

Friday, June 27, 1930.

Kokai, Korea.

In the morning we first went to the village agricultural society where we met the Village Master, Mr. Ri Hokyo and his assistant Mr. Sose Fukuzo. They thought we had better visit the village seed and nursery farm, and called Mr. Heiichiro, Director of the farm. We spent the morning at the farm looking over the experimental work with soybeans, oats, barley, wheat, kaoliang, hemp, alfalfa, and some vetches. Soybean breeding work is being carried on and several excellent varieties have been developed by the farm. Mr. Heiichiro was much interested in our search for Zoysia and went with us on the banks of each side of the river. This grass was abundant along both sides and for a very considerable ways. We asked if we could arrange to have about 50 pounds of seed gathered when fully mature and Mr. Heiichiro advised that he would be glad to collect that amount for us at the same price per pound as quoted by the Dairen seedsman.

After lunch we went across the river to collect Zoysia seed and see how the Korean was making out whom we had hired in the morning to gather seed for us. During the afternoon some school boys also helped us but collecting much Zoysia seed is a slow, laborious proposition. We collected herbarium material of red and white clovers, Zoysia pungens var. Japonica, Trifolium hipimaster and more seed of the two clovers. Quite a fair quantity of Zoysia seed was collected considering that we tried to look around and gather that most mature. Upon our return to the inn we found the Village Chief of Police awaiting us. He called to find out if there was anything that he or his men could do to help us in our investigations around Kokai.

Negative #45314. Soja max. Soybean. Kokai, Korea.
View showing Korean grain merchant on Korean Farmers' Market Day. The pile of grain infront of the merchant is that of soybeans.

Negative #45315. Soja max. Soybean. Kokai, Korea.
View showing the purchasing of soybean seed samples from Korean grain merchant on Korean Farmers' Market Day.

See on
P. 5165

Negative #45316. Zoysia pungens var. Japonica. Grass. Kokai, Korea. View showing Korean boys helping gather seed of Zoysia on bank of the Seinoko River opposite Kokai. View also shows white clover (Trifolium repens) in the Zoysia sod.

Negative #45317. Korean Farmers' Market Day. Kokai, Korea. Street scene on Korean Farmers' Market Day showing grain merchants.

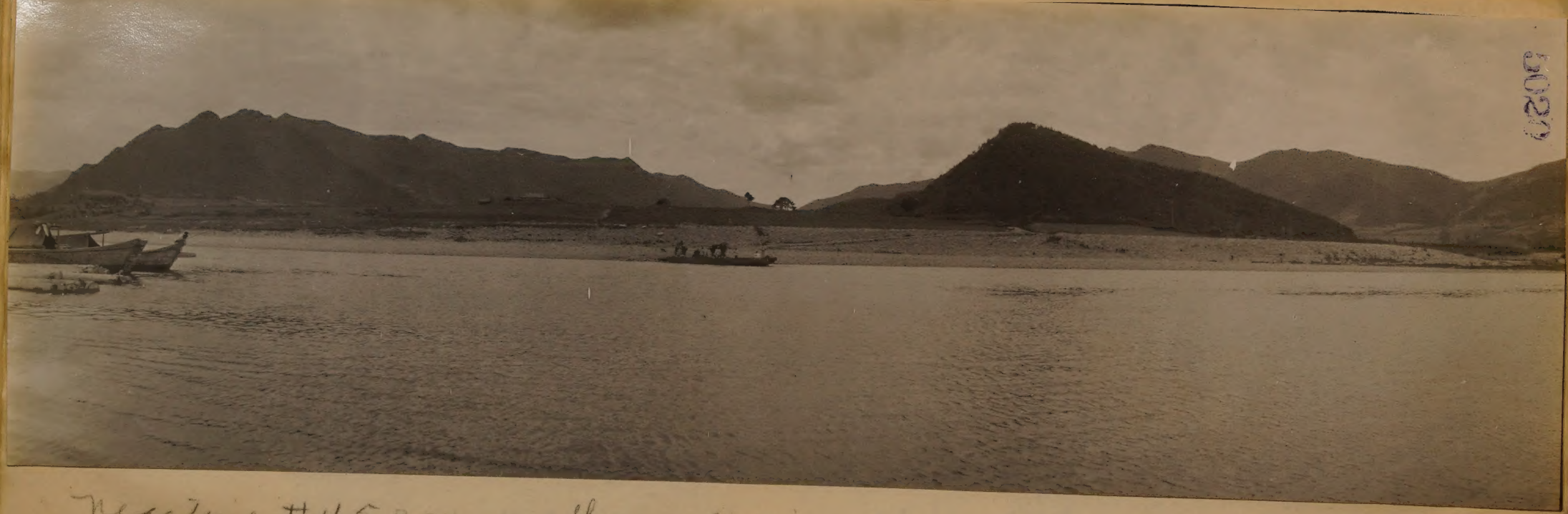
Negative #45318. General view. Kokai, Korea.

General view of Kokai village, ferry landing, and character of the region.

Negative # 45319. General view. Kokai, Korea.

General view from Kokai bank of Seinonko River showing mountainous region.

Negative #45320 General view Kokai, Korea
View of Seinonks River and Kokai village from the opposite bank of the river.



Negative #45321 General View. Kokai, Korea.
Looking across the Seinoko River from the Kokai side. On the opposite bank Zoysia pungens var Japonica grows abundantly. This is the place referred to by Dr. Mills in his talk to Dr. Piters of Forage Crops.

Negative # 45322. Zoysia pungens var. japonica. Kokai, Korea.
View across the Seinoko River from Kokai bank showing mountainous region and Zoysia pungens growing abundantly on opposite bank.

See on P. 5164

P. H. Dorsett's Notes.

Saturday, June 28, 1930.

Dairen, Manchuria.

Clear and dry, also quite warm today.

Worked at the office on official correspondence, also on numbering photographic prints and trimming them for our albums and quarterly report.

The B/L from Eastman Kodak Company, Shanghai, for shipment of photo supplies was received.

We turned this over to the Yamato Hotel for the purpose of effecting delivery of the package.

W. J. Morse's Notes.

Saturday, June 28, 1930.

Kokai, Korea.

In the morning we followed the bank of the Seinoko River, opposite the Kokai bank, down about two miles and found large patches of Zoysia. We took a ferry across and followed the bank back to Kokai and also found on this bank considerable Zoysia. We think Mr. Heiichiro will have no trouble in finding 50 or more pounds of Zoysia seed. At different places we collected more of the most mature seed.

After lunch we went up one of the mountain valleys north of Kokai to collect bulbs of Lilium Koreana. As we proceeded up the valley we found the lilies in great abundance and collected about 100 bulbs. We noted more or less kudzu scattered along but not in very great abundance at any one place. Vetch (probably Vicia amaena) was found growing quite abundantly but at the present time is only in

flower. On our return to the hotel we found eleven samples of soybean seed sent over by Mr. Heiichiro from the Seed and Nursery Farm. These represent the native varieties grown by the farmers here and best varieties developed by the Farm.

Negative #45323. Lilium Koreana. Korean Mountain Lily. Kokai, Korea. View of bunch of Korean mountain lilies gathered on mountain sides north of Kokai. This species is very abundant in the mountains of North Korea.

Negative #45324. Lilium Koreana. Korean Mountain Lily. View of bunch of Korean mountain lilies with bulbs collected from the mountain sides north of Kokai. This species is very abundant in the mountain region of North Korea.

Negative #45325. General view. Kokai, Korea.
Looking down a mountain valley toward Kokai showing the Seinoko River.

Negative #45326. Sawing logs into boards. Kokai, Korea.
View showing Koreans sa ing logs into 1-inch boards on the bank of the Seinoko River, Kokai.

Negative #45327. Kokai, Korea and surrounding country. View from mountain side looking toward Kokai across the Seinoko River.

Negative #45328. General view of Kokai region, Kokai, Korea. Looking up the Seinoko River valley showing Kokai on the right bank. Taken from a mountain side. In the foreground are rice paddies.

P. H. Dorsett's Notes.

Sunday, June 29, 1930.

Dairen, Manchuria.

Arranged through the Yamato Hotel for the delivery of a shipment of photo supplies from the Eastman Kodak Co. at Shanghai, which arrived yesterday, to be delivered to room #12 Gohin Building, as soon as possible tomorrow morning.

I also worked on official correspondence and on trip report.

W. J. Morse's Notes.

Sunday, June 29, 1930.

En route Kokai-Kisen, Korea.

We left Kokai at 9:00 a. m. by bus (one of Henry Ford's first cars) for Kisen, where we were to remain over night. The day was rather hot and our ride in the Ford over rocky mountain roads was anything but comfortable. The bushy clover (Lespedeza bicolor) is quite abundant along the mountain sides and is now in full bloom.

We arrived at Kisen about 3:30 p. m. and went to the Ebiyusa Inn. After some tea and cakes we went across the river and collected a good sample of Zoysia seed which is a few days earlier than that at Kokai. On a hillside we saw some Korean farmers cultivating soybeans and corn with plows and also hoeing. We obtained some movie and still pictures of the cultivation scenes. Some pictures were also taken of the Zoysia sod along the river bank. Kisen has a village seed and nursery farm and in the evening the Director,

Mr. Eitaro called on us and gave some very good data on the soybeans in the Kisen region. He also brought samples of different grades and varieties. Before leaving he gave us eleven soybean samples representing the best varieties grown in this section.

Negative #45329. Sola max. Soybean. Kisen, Korea. View showing Korean farmer and wife hoeing soybeans and corn with sh t handled hoes.

Dup. on P. 5167

Negative #45330. Zoysia pungens, var. Japonica. Kisen, Korea. View showing Mr. Suyetake with volunteer Korean helpers gathering seed of Zoysia along river bank. View also shows compactness of sod.

Negative #45331. Soja max. Soybean. Kisen, Korea. View of Korean farmer with plow used in cultivating soybeans and corn.

Negative #45332. Soja max. Soybean. Kisen, Korea. View showing Korean farmer cultivating corn and soybeans. This is the second cultivation.

Negative #45333. Zoysia pungens var. Japonica. Kisen, Korea. Collecting seed of Zoysia on bank of river near Kisen. View shows compactness of sod.

Negative # 45224. General view. Kisen, Korea.

Looking toward the Korean village of Kisen. *Zoysia pungens* var. *japonica* grows very abundantly along the dry river bottom.

Negative #45335. General view. Kisen, Korea.

View of farm and mountain sections near Kisen. Taken from a mountain side. To the right may be seen the buildings and experimental plots of the Kisen Village Seed and Nursery Experimental Farm.

negative # 45336. Zoysia pungens var. japonica. Kisen, Korea.
View showing patches of Zoysia pungens along dry river bottom across river from Kisen.

Def on P. 5166

P. H. Dorsett's Notes.

Monday, June 30, 1930.

Dairen, Manchuria.

A very nice day but rather warm and still warm. Worked at the office trimming and numbering prints and negatives for our albums and quarterly report.

The package of photographic material from Eastman Co. was not delivered but likely will be tomorrow morning.

I received a letter from Peter Liu stating that he would leave Peiping the evening of the 4th and would arrive on July 6th. He neglected to say how he was coming.

W. J. Morse's Notes.

Monday, June 30, 1930.

En route Kisen, Korea to Antung, Manchuria.

We left Kisen by bus at 9:00 a. m. for Shin- An-Shu where we arrived at 2:40 p. m. Our ride from Kisen to Shin-An-Shu was the worst of any stretch we have had going to or returning from Kokai. Since we came over this stretch of road on Wednesday, large crushed rock had been placed over a good share of the road. The driver of the bus was trying to see how fast he could go over this road. When we reached Shin-An-Shu we found standing or walking better than sitting.

We took the 5:00 p. m. train at Shin-An-Shu, Korea, and arrived at Antung, Manchuria at p. m. and remained over night at the ~~Auto~~ Anto Hotel. Before leaving the station, however, we had to have our baggage examined by the Chinese Customs. The suitcases and camera cases were opened, merely looked over, and passed.

From Kisen to Shin-anshu, Zoysia was noted all along the river banks, and also from Shin-anshu to Shin-gishu, it was noted along the banks of streams.

Negative # 45337. Zoysia pungens var. japonica. Hyohoku; Korea.
View across a river showing the Korean village Hyohoku. On the river banks Zoysia sp. grows abundantly and horses and cattle are being pastured on it.